SPECIFICATIONS

Gas Chromatography/
Mass Spectrometry

Clarus SQ 8 Mass Spectrometer

The PerkinElmer® Clarus® SQ 8 Mass Spectrometer (MS) is a detector designed to be interfaced with the Clarus 580 and 680 Gas Chromatograph (GC). The Gas Chromatograph Mass Spectrometer (GC/MS) is controlled and data analyzed through the PerkinElmer TurboMass™ GC/MS software system. The following Clarus SQ 8 models are available:

Clarus SQ 8 T—Compatible with the Clarus 680 GC, with Electron Impact (EI) ionization and 255 L/sec turbomolecular pump.

Clarus SQ 8 C—Compatible with the Clarus 680 GC, with Electron Impact (EI) and Chemical Impact (CI) ionization and 255 L/sec turbomolecular pump.

Clarus SQ 8 S—Compatible with either the Clarus 580 GC or Clarus 680 GC, with Electron Impact (EI) ionization and 75 L/sec turbomolecular pump.

Sensitivity

Clarus SQ 8 T		
Test	Amount	Signal to Noise Performance
EI Full Scan	1 pg of octafluoronaphthalene	800:1

Clarus SQ 8 C		
Test	Amount	Signal to Noise Performance
EI Full Scan	1 pg of octafluoronaphthalene	800:1
Positive CI Full Scan	100 pg of benzophenone	1200:1
Negative CI Full Scan	1 pg of octafluoronaphthalene	10,000:1

Clarus SQ 8 S		
Test	Amount	Signal to Noise Performance
EI Full Scan	1 pg of octafluoronaphthalene	650:1

PerkinElmer®
For the Better

Hardware

Ion Source	PerkinElmer SMARTsource™—Simplified Maintenance and Removal Technology (EI and CI compatible)
Filament	Marathon™—designed for long life
Mass Range / Resolution	1.0 - 1,200 u (amu) / 0.5 m/z
Detector	Clarifi™ detector—long-life high sensitivity electron multiplier detector
Analyzer	Quadrupole with pre-filter
Mass Stability	±0.1 m/z over 48 hours
EI Voltage	10 – 100 eV
Vacuum Pumps	T and C models: 255 L/sec (nitrogen) air-cooled turbomolecular pump (230 L/sec helium pumping capacity) S model: 75 L/sec (nitrogen) air-cooled turbomolecular pump (59 L/sec helium pumping capacity)
Vacuum Gauge	Single wide-range gauge (standard on all models)
Pump-down Time	255 L/sec turbomolecular pump: <3 minutes for air/water check, <90 minutes for quantitative stability
Temperature Settings	SMARTsource: Settable 50 °C – 350 °C, GC transfer line: Settable 50 °C – 350 °C
Carrier Gas Flow Rate	255 L/sec turbomolecular pumping systems: 5 ml/min, 75 L/sec turbomolecular pumping systems: 1.5 ml/min
Mass Calibrant	PFTBA (FC-43) gas, triazine (high mass applications), user selectable
MS Isolation	Swafer™ Micro-Channel Flow Technology
Field Upgrades	Positive/negative chemical ionization (255 L/sec), standard to large turbomolecular pump (75 L/sec to 255 L/sec), water cooling (all models)

Performance

MS Data Collection	Full Scan, Selected Ion Monitoring (SIM), Simultaneous Full-Scan Selected Ion Monitoring (SIFI)
Scan Rate	Fully variable up to 12,500 amu/sec
Acquisition Rate	100 points/sec (SIM)
Functions/Run	32 functions or 32 ions per function
Linear Dynamic Range	10^6 dependant on acquisition rate

Data system

Software	TurboMass™ 6.0 designed for Windows 7 professional operating system
Methods	Electronically transferable between all TurboMass and Clarus GC/MS systems
GC Acquisition	Full control and data processing of a single GC/MS with up to 2 GC detectors
MS Tuning	UltraTune™: Standard Tune environmental tuning optimized for EPA methods; Custom Tune user definable optimization
Reporting	Included in all models with specialized reports for: Environmental and forensic applications.
Optional Software	MS Libraries: NIST Mass Spectral Library, including AMDIS Deconvolution, Wiley Mass Spectral Library Maurer/Pfleger/Weber Library of Drugs, Pollutants, Pesticides, and Metabolites Advanced Processing: Ion Signature Deconvolution software

Physical

Power	120 VAC ±10% @ 50/60 Hz ±1% 1,000 VA, 230 VAC ±10% @ 50/60 Hz ±1% 1,000 VA
Temperature	10 °C – 30 °C (10 °C – 35 °C with water cooling option)
Relative Humidity	20 – 80 % non-condensing
Weight	T and C models: 49.9 kg (110 lbs), S model: 46.7 kg (103 lbs), Forepump: 25.9 kg (57 lbs)
Dimensions (HxWxD)	Standalone MS: 50 x 32 x 77 cm (20 x 13 x 30 inches), Clarus SQ 8 T GC/MS (with Autosampler): 83 x 98 x 82 cm (33 x 39 x 32 inches)

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