

# • SCION SQ GC Quadrupole Mass Spectrometer

## Specification Sheet

The SCION SQ is the chromatographer's choice for quadrupole mass detector; it is designed to match your most stringent needs for analytical performance and productivity. The SCION SQ offers superior sensitivity and robustness based on innovative ion optics, and fast and easy methods development. The SCION SQ GC-MS system defines a new standard of usability for routine analysis

### Analyzer - MS Specifications

- Scan modes: Full Scan; Selected Ion Monitoring (SIM), Combined Full Scan-SIM
- Standard ionization mode: Electron Ionization (EI)
- Optional ionization modes: Chemical Ionization (CI) including PCI and NCI
- Ion source: Auto-aligning EI or CI (optional) sources constructed of inert materials
- Q0 ion guide: 90° curved RF-only entrance quadrupole with active ion beam focusing
- Source temperature: 100 ° C to 350 ° C
- Filament and emission current: dual filaments; up to 200 µA
- Electron energy: adjustable from 10 to 150 eV
- Mass filter: quadrupole with pre- and post-filter; high ion transmission efficiency lens-less design
- Mass range (m/z): 10 to 1200 Da (Can be extended to 1 to 1200 Da)
- Scan rate: up to 20,000 Da/sec
- Minimum dwell times: 1 ms
- Resolution: user adjustable from Unit (0.7 Da) to 4 Da, also with three user selectable settings (Unit, Standard, Open)
- Mass axis stability: <math>\pm 0.1</math> Da over 48 hours
- Transfer line temperature: up to 350 °C
- Manifold temperature: 40-50 °C
- Detector: Electron multiplier with  $\pm 5$  kV post acceleration and with on-the-fly multiplier gain optimization for Extended Dynamic Range (EDR™); direct ion collection onto multiplier for negative ion detection without dynode loss
- Turbomolecular pump: single stage, 400L/sec (select model); dual stage, 310/400 L/sec (prime and premium model); air-cooled for helium carrier gas flow up to 25 ml/min
- Foreline pump: dual-stage rotary vane; voltage – 120/230V (same as GC Voltage)
- Power requirements: 100-240 Vac, 50/60 Hz  $\pm 3$  Hz, 1200 VA
- Operating environment temperature: 15°C to 33 °C
- Operating environment humidity: 20% to 80% relative humidity (without condensation)

### Software

- Scion MS Workstation for data acquisition, data handling and reporting
- Optional Spectral Libraries: NIST, Wiley, and Pflieger/Maurer/ Weber (PMW) libraries with user customizable libraries and automatically searching of multiple libraries
- Autotune in all ionization modes, special tunes for EPA methods (DFTPP/BFB)

Gas Chromatograph (Scion 436 and 456 Model GC) For more specification on GC refer to the GC Data Sheet

- Injectors: Split/Splitless (SSL), Programmable Temperature Vaporization (PTV) and PTV with back-flush (PTV/BF), Cold-on-Column (COC)
- Autosamplers: CP 8400; CP 8410; CTC PAL COMBI-xt
- GC Oven Temperature: Ambient + 4 ° C to 450 ° C, -100 ° C to 450 ° C (with Liquid N<sub>2</sub>); -60 ° C to 450 ° C (with Liquid CO<sub>2</sub>)
- Temperature Ramps/Holds: 24/25
- Pneumatic: Electronic Flow Control (EFC) or Manual
- ChromatoProbe: Direct introduction of solids, liquids or slurries (requires PTV injector)

Performance Specifications\*

Mode	Test (with SSL injector in hot splitless mode)	Specification†
EI Full Scan	1 pg Octafluoronaphthalene (OFN) from m/z 50 to 300 for m/z 272	S/N ≥ 2000:1
PCI Full Scan‡	100 pg Benzophenone (BZP) from m/z 80 to 230 for m/z 183	S/N ≥ 600:1
NCI Full Scan‡	200 fg OFN from m/z 200 to 300 for m/z 272	S/N ≥ 1000:1

\* All tests performed with helium at carrier gas

† The Signal-to-Noise ratio S/N values are based on RMS

‡ CI tests use methane as reagent gas

Dimensions (H x W x D) and Weight

Additional spaces should be added for the data system, monitor and printer

- Scion SQ: 45 cm (18 in.) x 28 cm (11 in.) x 57 cm (22.5 in.); 37 kg/82 lb
- 436 GC: 57 cm (22.5 in.) x 32 cm (13 in.) x 61 cm (24 in.); 26.8 kg/59 lb
- 456 GC: 57 cm (22.5 in.) x 66 cm (26 in.) x 56 cm (22 in.); 43 kg/95 lb
- CP-8400/8410 Autosamplers: 22 cm (8.5 in.) x 40 cm (15.7 in.) x 47 cm (18.5 in.); 7 kg/15.3 lb