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Xevo TQ-S micro

Xevo® TQ-S micro is a sensitive but compact tandem quadrupole mass spectrometer featuring reliable performance with a wide dynamic range and high rates of data acquisition. Robust sensitivity is enabled by proven ZSpray™ and StepWave™ which facilitate the detection of analytes at low concentrations in complex matrices and enable low volume injections with accurate, precise, and consistent results. Xtended Dynamic Range™ (XDR) technology provides accessible sensitivity and method transfer. The Xevo TQ-S micro makes it easier to confidently quantify more analytes using reproducible high acquisition rates with Xcelerated Ion Transfer™ (XIT). Using RADAR,™ which enables rapid switching between MS full scan and MS/MS acquisition modes, analysts can understand sample complexity and improve method development.

SYSTEM HARDWARE SPECIFICATIONS

API sources and ionization modes	High performance ZSpray dual-orthogonal API sources: 1) Multi mode source – ESI/APCI/ESCi® (standard) NB – Dedicated APCI requires an additional probe (optional) 2) APCI IonSABRE II probe (optional) 3) Dual mode APPI/APCI source (optional) 4) nanoFlow™ ESI source (optional) 5) ASAP (optional) 6) APGC ion source (optional) 7) ionKey/MS™ source (optional) Optimized gas flow dynamics for efficient ESI desolvation (supporting LC flow rates up to 2 mL/min) Tool-free source exchange Vacuum isolation valve Tool free access to customer serviceable elements Plug and play probes De-clustering cone gas Software control of gas flows and heating elements
Ion source transfer optics	StepWave ion transfer optics delivering class leading UPLC®/MS/MS sensitivity. The unique off-axis design dramatically increases the efficiency of ion transfer from the ion source to the quadrupole MS analyzer at the same time as actively eliminating undesirable neutral contaminants.
Mass analyzer	Two high resolution, high stability quadrupole analyzers (MS1/MS2), plus pre-filters to maximize resolution and transmission while preventing contamination of the main analyzers

Collision cell	T-Wave™ enabled for optimal MS/MS performance at high data acquisition rates
Detector	Low noise, off axis, long life photomultiplier detector
Vacuum system	One split-flow air-cooled vacuum turbomolecular pump evacuating the source and analyzer; One vacuum backing pump
Dimensions	Width: 35.6 cm (14.0 in) Height: 60.0 cm (23.6 in) Depth: 93 cm (36.6 in)
Regulatory approvals/marks	CE, CB, NRTL (CAN/US), RCM

SYSTEM SOFTWARE SPECIFICATIONS

Software	Systems supported on MassLynx® version 4.1; OpenLynx™ and TargetLynx™ XS Application Managers are included as standard
IntelliStart™ Technology	System parameter checking and alerts Integrated sample/calibrant delivery system + programmable divert valve Automated mass calibration Automated sample tuning Automated SIR and MRM method development LC-MS System Check – automated on-column performance test
Quantification methods database	Quanpedia™ – a database for storing and sharing user defined LC/MRM acquisition methods and associated processing methods for the targeted quantification of named compounds is provided as standard; database entries for a number of applications are also provided as a standard
Automated MRM scheduling (acquisition rate assignment)	Dwell time, inter-channel delay time, and inter-scan delay time for individual channels in a multiple MRM experiment can be automatically assigned (using the Auto-Dwell feature) to ensure that the optimal number of MRM data points per chromatographic peak is acquired. The Auto-Dwell feature can dynamically optimize MRM cycle times to accommodate retention time windows that either partially or completely overlap. This greatly simplifies MRM method creation, irrespective of the number of compounds in a single assay, while at the same time ensuring the very best quantitative performance for every experiment
Automated MRM scheduling (acquisition rate assignment)	Multiple MRM experiments can be scheduled (manually or automatically using the database) using retention time windows to optimize the cycle time for each MRM channel monitored. If required, MRM retention time windows can overlap partially or completely. This ensures that MRM data acquisition rates will be optimal for the quantification of all analytes in a given assay

PERFORMANCE SPECIFICATIONS

Acquisition modes	Full scan MS Product ion scan Precursor ion scan Constant neutral loss Selected ion recording (SIR) Multiple reaction monitoring (MRM) Simultaneous full scan and MRM (RADAR)
Survey scan modes	Full scan MS triggered product ion scan Precursor ion scan triggered product ion scan Constant neutral loss triggered product ion scan
Product ion confirmation (PIC) mode	MRM acquisition acts as an automatic trigger for the acquisition of product ion spectra
RADAR	An information rich acquisition approach that allows you to collect highly specific quantitative data for target compounds while providing the ability to visualize all other components
Mass range	2 to 2048 *m/z*
Scan speed	Up to 20,000 Da/s Examples of achievable acquisition rates: 20 scans per second (*m/z* 50 to 1000) 40 scans per second (*m/z* 50 to 500)
Mass stability	Mass drift is <0.1 Da over a 24 hour period
Linearity of response	The linearity of response relative to sample concentration, for a specified compound, is six orders of magnitude from the limit of detection
Polarity switching time	15 ms to switch between positive and negative ion modes
MS to MS/MS switching time	3 ms
ESCi mode switching time	20 ms to switch between ESI and APCI
MRM acquisition rate	Maximum acquisition rate of 500 MRM data points per second; Minimum dwell time of 1 ms per MRM channel; Minimum inter-channel delay of 1 ms; At an MRM acquisition rate of 500 MRM data points per second there is no more than 20% loss in signal compared to 50 MRM data points per second
Inter-Channel cross talk	The inter-Channel cross talk between two MRM transitions will be less than 0.001% (less than 10 ppm)
Number of MRM channels	Up to 32,768 MRM channels (1024 functions, 32 channels per function) can be monitored in a single acquisition; up to 1,024 MRM channels when operating in GLP/secure mode (32 functions, 32 channels per function)
Mass resolution	Automatically adjusted (IntelliStart) to desired resolution; (0.50 Da, 0.75 Da or 1.00 Da FWHM)

MRM sensitivity (ESI+)	A 1 pg on-column injection of reserpine will give a chromatographic signal-to-noise greater than 200,000:1, using raw unsmoothed data (LC mobile phase flow rate of 0.4 mL/min, MRM transition 609 >195 *m/z*)
MRM sensitivity (ESI-)	A 1 pg on-column injection of Chloramphenicol will give a chromatographic signal-to-noise greater than 100,000:1, using raw unsmoothed data (LC mobile phase flow rate of 0.8 mL/min, MRM transition 321 >152 *m/z*)
MRM sensitivity (APCI+)	A 1 pg on-column injection of 17-α-hydroxyprogesterone will give a chromatographic signal-to-noise greater than 30:1, using raw unsmoothed data (LC mobile phase flow rate of 0.8 mL/min, MRM transition 331 >109 *m/z*)

It should be noted that the above are not standard installation specifications. All Xevo TQ-S micro instruments will be installed and tested in accordance with standard performance tests as detailed in Waters document (Xevo TQ-S micro Installation Checklist). Test criteria are routinely reviewed to ensure quality is maintained and are therefore subject to change without notice. See Site Preparation Guide and Product Release Notes for additional product and specification information.

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