AXIMA Resonance™ SPECIFICATION

TECHNICAL DATA

Sample Handling

- Fully automated sample introduction mechanism
- XY stage (4 µm step, 10 µm repeatability) for microtiter plate footprint MALDI target
- Plain, 96 and 384 2 mm thick sample targets
- Accepts thick targets (10 mm) with optional adaptor for a variety of biochip designs and alternative formats
- Computer software driven target stage for accurate positioning of sample under the laser focus
- Raster software for scanning samples for 'sweet spots'
- 250 l/s turbo pump and 3 m^3/hr rotary pump for rapid pump down of sample inlet area

Ionization Source

- Matrix assisted laser desorption ionization
- 10 Hz N_2 laser (337 nm) system with UV optics
- Near on-axis laser irradiation
- Variable ion extraction energy (~100 eV) under software control
- Positive and negative ion operation, as standard, through software selection
- Differential vacuum maintained by a turbomolecular pump (255 l/s) with rotary backing and pressure measurement
- High efficiency introduction ion lens system

Laser

- 337 nm nitrogen laser, fixed focus
- 3 ns pulse width
- Maximum pulse rate - 10 Hz (10 laser shots per second)
- Laser power and laser aim under software control
- Near normal incidence of the laser beam to the sample

Ion Trap System

- Optimized ion-to-trap introduction sequence with Rapid RF Start-Up™ and Helium Hypercool™
- Continuous helium buffer gas for efficient ion cooling
- Differential vacuum maintained by a turbomolecular pump (70 l/s) with rotary backing and pressure measurement
- Filter Noise Field (FNF) algorithms for precursor ion selection/rejection (resolution > 1000 at 1000 Da)
- In-trap CID with collision gas introduced by means of a software controlled pulsed solenoid valve
- Ion selection/CID/cooling cycles repeatable for MS^n
- Ion extraction to TOF -10 kV / +6 kV (± 9 keV)

TOF Mass Analyzer

- Reflectron effective drift length - 1.9 m
- Small footprint, vertical flight tube design
- High sensitivity double stage adjustable reflectron-mode time of flight detector system
- Integral vacuum system with pressure measurement gauges and gate valve
- High stability power supplies for ion source and detectors
- Differential vacuum maintained by 2 turbomolecular pumps (255 l/s) with rotary backing and pressure measurement
- Patented gridless two-stage reflectron design for optimal resolution

Imaging System

- Monochrome CCD camera (25x magnification) controlled by software embedded in LAUNCHPAD™

Detector

- Reflectron mode - micro-channel plate

Control and Data Acquisition Electronics

- 1 GHz HDR transient recorder
- 3 DSP Processor control board
- Active component power distribution
- Optically isolated high voltage control
- Rapid Start-Up RF generation
- Integrated Trap-to-TOF high voltage switching electronics
- Positive and negative ion measurement

Data System*

- Core 2 Duo 2.4 GHz*
- 19" LCD monitor (1280 x 1024, 32 bit colour)
- 2 GB RAM
- 160 GB hard disc, 32 x CD-RW/DVD-ROM combo
- Network adaptor and frame grabber
- Remote Webex (for remote operation and diagnostics)
- Operating system: Microsoft® Windows® XP Professional

* Minimum specification subject to continuous improvement

Software

- LAUNCHPAD™ - operates under Microsoft® Windows® XP Professional and Microsoft® Vista®
- Software for automatic optimization of data generation
- Raster scanning function for identification of sweet spots
- Automated and user defined precursor ion selection
- Automated and user defined precursor ion fragmentation
- Automated data-dependent MS/MS functionality
- Calculator for determination of theoretical masses of compounds
- Calculator for determination and manipulation of peptide sequences (including theoretical fragment masses)
- Sample layout editor
- Sample scanning editor
- Automated MS protein/peptide database interrogation using Mascot® search engine (Matrix Science Ltd.)
- Access to internet and intranet (Mascot® from Matrix Science Ltd.) database search engines for protein identification

Additional software modules available: PolymerAnalysis™, Tissue Imaging, LC MALDI, OligoAnalysis™ and PTM Finder™.

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INSTALLATION DATA

Dimensions

- Size (w h d) - 0.72 m x 1.92 m x 0.95 m, minimum distance to wall at back is 100 mm
- Weight - 420 kg excluding data system

Installation Requirements

- Electrical - 207-253 VAC, 50-60 Hz, 1600 VA single phase OR
  180-220 VAC, 50-60 Hz, 1600 VA (Japan only)
- A 'clean', stable and continuous mains supply is required for reliable operation
- PC - selectable 100-120 VAC, 50-60 Hz, 2.0 A single phase OR
  220-240 VAC, 50-60 Hz, 1.0 A single phase
- Monitor - auto-sensing 100-240 VAC, 50-60 Hz, 1.4-0.6 A
- Temperature - ambient 18° to 26° C
- Relative humidity - less than 70% non condensing
- Vibration free, firm, level surface, 420 kg supported at four points 0.75 m centres
- Gas supplies: 99.995% purity helium cooling gas and argon collision gas
- Helium supply – approx 10 bar adjustable regulator
- Argon supply - approx 5 bar adjustable regulator
- Suitable 3 mm stainless steel tubing for gas connections is supplied

PERFORMANCE DATA

MS mode capabilities	MS^n (where n>3)
Mass range	100 to 12000 Da
MS mode mass resolution	>8000 FWHM
Mass accuracy	MS - 3 ppm with internal calibration 5 ppm with external calibration#
	MS/MS - 10 ppm with internal calibration 20 ppm with external calibration#
Precursor ion selection resolution	1000 (i.e. 1 Da at 1000 Da)
CID capability	Variable energy fragmentation
Sensitivity	MS - 500 amol (positive ion mode)
	MS/MS - 500 amol (positive ion mode)
	MS^3 - 5 fmol (positive ion mode)

Within 30 minutes of calibration.

All specifications are run on a standard 2 mm, 384 well, stainless steel sample plate unless otherwise stated.

The AXIMA instruments are designed and manufactured under Kratos' Quality Management System and certified for CE conformity. Kratos Analytical Ltd. is an ISO 9001 quality assured company.

Installation and initial training will be provided by a team of experienced engineers and application specialists world-wide. The instrument is covered by a 12 month guarantee. Please ask your local dealer for details on full service contracts.

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