

Specification Sheet  
**AXIMA Performance**
**Technical Data**
**Sample Handling**

- Fully automated sample introduction mechanism
- XY stage (10 µm step, 10 µm repeatability) for microtiter plate footprint MALDI target
- 2 mm thick plain, 96 and 384 sample targets
- Accepts thick (10 mm) targets with optional adaptor for a variety of biochip designs and alternative formats
- Turbomolecular pump (nominal 250 l/s) for fast SAC pumping with rotary backing
- Computer software driven target stage for accurate positioning of sample under the laser focus
- Raster software for scanning samples for 'sweet spots'

**Sample Viewing System**

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

**Ionization Source**

- Matrix assisted laser desorption ionization
- Pulsed Extraction (mass calibrated variable delay) or Continuous Extraction, under software control
- Variable ion extraction energy (linear +25 kV/-20 kV, reflectron +20 kV/-20 kV) under software control
- Positive and negative ion operation, as standard, through software selection

**Laser**

- 337 nm nitrogen laser, fixed focus
- 3 ns pulse width
- Nominal energy – 100 µJ per laser shot
- Maximum pulse rate – 50 Hz (50 laser shots per second)
- Near normal (on-axis) incidence of the laser beam to the sample
- Laser power and laser aim under software control

**Analyzer**

- Linear flight tube of 1.2 m drift length
- Reflectron effective drift length 2.0 m
- Vacuum maintained by two turbomolecular pumps (nominal 250 l/s) with rotary backing
- Unique curved field reflectron system permitting 20 keV laboratory frame energy CID collisions without reacceleration
- Beam blanking to deflect unwanted high intensity signals e.g. matrix ions
- Unique monoPULSE™ precursor ion gate allowing isolation of closely adjacent precursor ions
- Collision cell (20 keV high energy CID MS/MS) fully optimized for fragmentation efficiency and ultimate sensitivity
- Software controlled helium gas introduction for high energy CID MS/MS
- Differentially-pumped collision cell using turbomolecular pump (nominal 70 l/s) with rotary backing and collision gas purge

**Detector**

- Linear mode – electron multiplier (multiple dynode)
- Reflectron mode – ultrafast micro-channel plate
- 2 GHz, 8 bit transient recorder, 16 bit accumulator
- Second transient recorder for simultaneous neutral detection – 125 MHz, 8 bit, 128 kB RAM

**Control and Data System\***

- Intel® Core™ PC with 24" monitor
- 8 GB RAM
- 500 GB hard disc, DVD-RW
- Network adaptor and frame grabber
- Microsoft® Windows® 10 operating system

\* Minimum specification subject to continuous improvement

**Software**

- LAUNCHPAD™ – operates under Microsoft® Windows® 10
- Software for automatic optimization of data generation
- Calculator for determination of theoretical masses
- Calculator for determination and manipulation of peptide sequences (including theoretical fragment masses)
- Software for automatic setting of precursor ion gate and acquisition of MS/MS spectra
- Scanning software for the identification of 'sweet spots'
- Sample target design editor
- Sample raster design editor
- Low Mass Zoom™ (LMZ) scan functionality to enhance low mass and immonium fragment ions aiding MS/MS interpretation and selected quantification chemistries
- Tools to generate peak lists and access internet and intranet (Mascot® from Matrix Science Ltd.) database search engines for protein identification

## Installation Data

### Dimensions

- Size (w h d) – 0.7 m x 1.92 m x 0.85 m, minimum distance to wall at back is 100 mm
- Weight – 375 kg excluding data system

### Installation Requirements

- Electrical – 200 VAC, 50/60 Hz, 1000 VA single phase OR  
230 VAC, 50/60 Hz, 1000 VA single phase
- 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° Celsius
- Relative humidity – less than 70% non condensing
- Vibration free, firm, level floor, at least 375 kg supported at four points
- Gas supply: 99.995% helium collision gas
- Tubing for gas installation (suitable coil provided): stainless steel 3 mm OD, 0.7 mm wall thickness. Pressure regulated at 3 bar<sup>†</sup>

<sup>†</sup> Regulator equipped with a suitable adaptor to accept a 3 mm OD stainless steel tube

### Performance Data

- **Mass range**
  - linear – 1 Da to 500 kDa
  - reflectron – 1 Da to 80 kDa
- **Mass resolution**
  - linear – >5000 FWHM - ACTH 18-39((M+H)<sup>+</sup> 2465 Da)
  - reflectron – >20,000 FWHM - ACTH 7-38 ((M+H)<sup>+</sup> 3660 Da)
  - MS/MS – isotopic resolution of fragments – Angiotensin II
- **Accuracy**
  - linear – <30 ppm with internal calibration  
<200 ppm with external calibration<sup>‡</sup>
  - reflectron – <5 ppm with internal calibration  
<50 ppm with external calibration<sup>‡</sup>
  - MS/MS – <150 ppm with external calibration<sup>#</sup>
- **Ion gate resolution**
  - >400 FWHM at 1000 Da
- **Sensitivity**
  - linear – 250 fmol - bovine serum albumin (loaded)  
250 amol - Glu-1-Fibrinopeptide B (loaded)
  - reflectron – 250 amol - Glu-1-Fibrinopeptide B (loaded)
  - MS/MS – 2.5 fmol - Glu-1-Fibrinopeptide B (loaded)

<sup>‡</sup> Nearest neighbour external calibration on 384 well sample target, within 30 minutes.

<sup>#</sup> 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 range of instruments is designed and manufactured under the Kratos Analytical Ltd. Quality Management System and is CE compliant.

Installation and initial training will be provided by a team of experienced engineers and applications specialists world-wide.

The instrument is covered by a 12 month warranty.

Please contact your local representative for details on full service contracts.



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