



Single Beam and Double Beam

Excellence in Measurement

ISO9001:2008 CERTIFIED COMPANY



CE CB RoHS

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SPECIFICATIONS

SP-AA 4000 Atomic Absorption Spectrometer

Spectrum Instruments improve the optical precision, linear range and background correction effectively. SP-AA 4000 is an external computer controlled AAS equipped with 8-lamp positions, extinguish button, autozero button, start button, automatic gas control and automatic burner height setting.

System Design

Optical system	Dual Optics combined for single beam and double beam mode. True Double Beam developed optical noise reduction technology, which combined optical component UV enhancement technology. It improved instrument's optical performance, linear range and enhanced background correction. Measurement modes of atomic absorption and atomic emission.
Monochromator	Czerny-Turner type with 2 focal lengths at 355.8 and 345.6 mm, automated wavelength selection and slit selection. The monochromator provides a true double beam operation.
Wavelength range	185-900 nm
Grating	Holographic grating with 1800 lines/mm
Wavelength repeatability	±0.1 nm
Wavelength accuracy	±0.2 nm
Sensitivity (Cu)	approx. 0.8A at 5 ppm
Slits	Automated slit selection 0.1; 0.2; 0.7 and 1.4 nm
Detector	Wide range UV sensitive photomultiplier tube
Lamp	Automated 8-lamp turret with independent lamp power supply for each lamp and two heating circuits for preheating lamp operation.
Background Correction	Deuterium (D2) Background Correction and Self-absorption Background Correction.

Flame System

Burner-Nebulizer-System	All-titanium 100mm and 50mm burners are available:-100mm burner for air / acetylene operation, 50mm burner for both air / acetylene and nitrous oxide /acetylene operation. Adjustable nebulizer with internal Platinum / Iridium capillary, PEEK Nozzle and fixed ceramic impact bead are supplied as standard. SP-AA 4000 features automated setting of burner height for each elements.
Spray Chamber	The PPS (Polyphenylene Sulfide) spray chamber is used for both aqueous and organic solution.
Gas Controls	Programmable gas control features software-controlled gas flows with automatic setting of gas flows for each element.
Safety Functions	Interlocked safety system prevents selection of the nitrous oxide flame if the nitrous oxide burner is not fitted. Sensor controls for protection to use the incorrect burner head and check the siphon system. To ensure correct operating fuel gas and oxidant pressures are maintained also to check the flow rate. In case of the system power failure, safety interlocks will shut down the gases automatically.
Hydride System	The Hydride system is a continuous flow technique for the determination of As, Se, Sb, Sn, Te, Bi and Hg at low microgram per liter (ppb) concentration with electrothermal heating unit to heat the quartz cell. The Hg will be determined with the cold vapour technique. The system has the gas flow control including two peristaltic pumps for supply the reagent, acid and samples solution.
Autosampler for Flame	Corrosion resistant sample tray is consist of 85 positions. Integral peristaltic pump with speed control provides on-demand rinsing of the probe, eliminating carryover.

Graphite furnace System (option)

Heating System	Integrated computer-controlled Longitudinal Heated Graphite Furnace.
Function	Analytical furnace programs up to 9 steps can be set up.
Temperature	Programmable temperature up to 3000 °C in 1 °C increment. Maximum linear heating rate is 2000 °C/s under software control.
Gas Flow	Choice of two inert gases with computer-controlled flows. Separate control of inert gas stream is Argon for internal and external gas flow.
Cooling System	A closed circuit optimised to save time, water and provide stable conditions. Water temperature during operation is approx. 38 °C.
Autosampler for Graphite	Injection volumes from 1 to 50 µL in increments of 1 µL are user selectable. Automatic dilutions and additions of three different modifiers are available. There is a corrosion resistant 87-sample position tray.

Other information

Software	SPWinAA Software Package
Weight	90kg
Dimensions (W x D x H)	800 mm x 580 mm x 575 mm
Environmental Requirements	10 °C up to 35 °C Rel. humidity max. 85 %
Power Requirements	110 / 220V±10%, 50/60Hz