



Atomic Absorption

AAnalyst 100 and AAnalyst 300

Atomic Absorption Spectrometers

HARDWARE

Photometer	Double-beam, time-shared and space-shared optical system. Front-surfaced, reflecting optics with protective coating. Optical system sealed within “tongue and groove” protective cover. Deuterium background corrector (optional on the AAnalyst™ 100).
Monochromator	Littrow design
Wavelength Range	185–860 nm; motorized drive for automatic wavelength selection and peaking
Diffraction Grating	1800 lines/mm blazed at 236 nm and 597 nm
Grating Area	64 x 72 mm
Reciprocal	
Linear Dispersion	1.6 nm/mm
Focal Length	274 mm
Spectral Bandwidth	0.2, 0.7, and 2.0 nm; motorized slit drive for automatic slit selection Automatically selectable slit height settings (High or Low)
Detector	Wide range photomultiplier with UV-transmitting window
Light Sources	Hollow cathode lamps and electrodeless discharge lamps. Lamp elements and recommended operating currents are automatically recognized and set when using PerkinElmer Lumina™ series AA lamps. Lamp alignment completely automatic with motorized 6-position lamp turret (optional on the AAnalyst 100)

GAS CONTROLS AND BURNER SYSTEM

Flame Gas Controls	
AAAnalyst 100	Individual gas controls, meters, and sensors for oxidant and fuel with pushbutton selection of the fuel-oxidant combination. Pushbutton-actuated remote ignition system with air-acetylene. Acetylene flow is automatically incrementally adjusted prior to the oxidant change when switching to or from nitrous oxide-acetylene operation.
AAAnalyst 300	Computer-controlled oxidant selection with automatic gas sequencing and oxidant and fuel monitoring and control. Keyboard-actuated remote ignition system with air-acetylene. Acetylene flow is automatically incrementally adjusted prior to the oxidant change when switching to or from nitrous oxide-acetylene operation.
Flame Safety Functions	Interlocks prevent ignition if the proper burner head (air-acetylene or nitrous oxide-acetylene), the nebulizer/end cap, or burner drain system is not correctly installed; the level of the liquid in the drain vessel is incorrect; or gas pressures are too low. Interlocks also will automatically shut down burner gases if a flame is not detected, if the temperature of the flame shield is too high, or if any of the other interlock functions are activated. Provision is included for safe shut-down from all operating modes in the event of a power failure. Purging of the gas box is controlled through the instrument or controller keyboard.
Burner System	Premix burner design with high-strength inert mixing chamber, angled to ensure proper drainage. Separate fuel and oxidant lines to the burner chamber limit combustible gas mixtures to those areas specifically designed to accommodate them. Separate auxiliary oxidant inlet allows variation of fuel:oxidant flow ratios without varying nebulizer oxidant flow, thereby maintaining constant, optimum solution aspiration rates.

Burner System
(cont'd)

Includes adjustable high-precision nebulizer and an all-titanium, 10 cm, single-slot burner head for air-acetylene operation. Optional nebulizers (including high sensitivity) and other burner heads (10 cm, 3-slot air-acetylene; 5 cm, single-slot air-acetylene; 5 cm, nitrous oxide-acetylene) are available.

Burner mount provides horizontal, vertical, and rotational adjustments. Quick-disconnect flame module simplifies changeover to optional HGA® furnace operation where the furnace and optional autosampler are mounted on a sampling arm that can be easily rotated into the area.

Sample Area

29 cm wide x 25 cm deep sample compartment accommodates a wide variety of sampling accessories. Opens to the front for easy access via a removable flame shield. Two detachable corrosion-resistant sample trays (each 48 cm wide by 20 cm deep).

CONTROL AND DATA SYSTEM

User Interface

AAAnalyst 100 Corrosion-resistant membrane keyboard with a two-line, 20-character/line, alphanumeric, vacuum-fluorescent display. Alphanumeric display provides prompting, allowable entry ranges and warning messages. A full numeric keypad with decimal and clear entry keys. Operating parameters and modes for flame, furnace, and flow injection analysis are pushbutton-selectable. Up to 30 parameter sets ("methods") may be stored and recalled.

Optional PC control of methods and data handling and storage using AA WinLab™ software based on the Microsoft® Windows® operating system.

AAAnalyst 300 Complete PC control using AA WinLab software operating under the Microsoft Windows operating environment. Provides complete control of the instrument and its major accessories plus data handling and storage.

Data Handling

Instrument readings linear in absorbance (–0.500 A to +3.000 A), concentration or emission intensity with continuously variable scale expansion from 0.01 to 100 times. Integration times operator-selectable from 0.1 to 60 sec in increments of 0.1 sec. Reading modes include time-averaged integration, non-averaged integration (peak area), and peak height measurement. Includes built-in statistics.

Up to eight (8) standards (AAAnalyst 100) or fifteen (15) standards (AAAnalyst 300) and a choice of proven calibration equations. Reslope of the analytical curve using a single operator-selected calibration standard. Built-in IEEE-488 interface for computer connection and use of optional accessories.

DIMENSIONS

AAAnalyst 100 or 300 99 cm wide x 46 cm high x 68 cm deep x 68 kg weight (without PC controller)
PC Controller* 37 cm wide x 52 cm high x 42 cm deep x 23.5 kg weight (DEC Venturis™ 575*)

POWER REQUIREMENTS

AAAnalyst 100 or 300 100/120/220/240 volts, 50/60 Hz, 250 watts with the deuterium background corrector
PC Controller* 100/120/220/240 volts, 50/60 Hz, 300 watts (DEC Venturis 575*)

TECHNICAL STANDARD

Certification Designed and tested to be in compliance with the legal requirements for technical instruments including IEC 348 and VDE 0411 and CSA 22.2 No. 151 and the U.S. Federal Communications Commission standards for radio frequency interference. Also complies with German legal requirements for radio interference suppression (better than grade A/0871). The instrument is developed and produced in compliance with ISO 9001. The AA WinLab software provides required control parameters for GLP and instrument performance validation.

User Support Includes a user's manual, a reference manual, and an analytical methods manual for atomic absorption spectrometry which gives detailed instructions for hundreds of determinations. Also includes a one-year, free subscription to *Atomic Spectroscopy*, a bimonthly journal devoted to atomic absorption, atomic emission, ICP-OES, ICP-MS and related fields.

*Note: Dimensions and power requirements for the PC controller include the processor and monitor (but not the keyboard) for the unit described and may be different for other DEC models or models from other manufacturers.

PerkinElmer Instruments
761 Main Avenue
Norwalk, CT 06859-0010 USA
Phone: (800) 762-4000 or
(+1) 203-762-4000
Fax: (+1) 203-762-4228
www.perkinelmer.com



PerkinElmer is a trademark of PerkinElmer, Inc. AAAnalyst, WinLab, GemTip and Lumina are trademarks and HGA is a registered trademark of PerkinElmer Instruments LLC. Microsoft and Windows are registered trademarks of the Microsoft Corporation. Venturis is a trademark of the Digital Equipment Corporation.

