

6. SPECIFICATIONS

Principle	Single-beam spectrometer with modulated 'AC' system; primary source radiation is modulated while radiation emitted by the atomizer (flame or incandescent graphite tube) is unmodulated. All-reflecting optical system with front-surfaced optics protected by a silica coating.
Monochromator	<p>Grating monochromator in Littrow configuration.</p> <p>Ruled area: 64 mm x 71 mm, 1800 lines/mm</p> <p>Reciprocal linear dispersion (nominal): 1.6 nm/mm</p> <p>Blaze wavelengths: 236 nm and 597 nm</p> <p>Focal length: 267 mm</p> <p>Wavelength range: 190 nm to 870 nm</p> <p>Resolution: 0.2; 0.7; 2.0 nm, preselectable slit height settings (HIGH or LOW)</p> <p>The current wavelength and slit settings are displayed on the video screen.</p>
Detector	Wide-range photomultiplier with UV transmitting window.
Radiation sources	Hollow cathode lamps (HCLs) and electrodeless discharge lamps (EDLs). Hollow cathode lamp current selectable up to 50 mA. Element-coded hollow cathode lamps can be used.
Modes of operation	<p>Five modes of instrument operation, each having a specific screen page and controlled by keyboard.</p> <ol style="list-style-type: none">1. ELEMENT SELECT Mode for selecting the element to be determined and whether a flame or a furnace technique is required for atomization.2. SETUP Mode for selecting the correct wavelength and slit width, and for performing source lamp alignment.3. PROGRAM Element Mode for entering various operating parameters. Two types of Program Mode screen page can be accessed; one for flame operation and the other for furnace operation.4. CONTinuous Mode for alignment of the burner or other atomizer, nebulizer adjustment, optimization of flame gases, and performing a sensitivity check.5. RUN Mode for performing calibration of the instrument and actual analytical measurements. Two Run Mode screen pages can be accessed; one for flame operation and the other for furnace operation.

Techniques	<p>Atomic absorption without background correction.</p> <p>Atomic absorption with background correction (when optional background corrector installed).</p> <p>Background signal only (when optional background corrector installed).</p> <p>Atomic emission.</p>
Readout	<p>Linear in absorbance, concentration, or emission intensity.</p> <p>Time-averaged integration (HOLD), non-averaged integration (PEAK AREA), and PEAK HEIGHT measurement.</p>
Signal handling	<p>Microcomputer with fast signal handling electronics. Digital display of the reading with polarity and correct decimal location on the integral video screen.</p> <p>Measurement ranges:</p> <p>Absorbance: -0.5 to 2.000</p> <p>Concentration: 0.0001 to 9999</p> <p>Expansion factor: 0.10 to 100</p> <p>Integration time: 0.1 to 50 seconds</p> <p>Read delay: 0 to 20 seconds</p> <p>Automatic averaging from 2 to 99 readings.</p> <p>Automatic calculation of the mean, standard deviation and the relative standard deviation.</p>
Calibration	<p>Automatic zero calibration, and concentration calibration with up to 8 reference solutions based on a linear equation, or a 2-coefficient equation, or a 3-coefficient equation, or a technique of standard additions, or a technique of standard additions calibration. If sufficient reference solutions are used, the coefficients are determined by least squares. Ability to reslope the analytical curve with a single additional reference solution.</p> <p>Automatic baseline offset correction (BOC) at the start of the READ cycle when operating in Peak Area or Peak Height.</p>
Graphics	<p>Graphical display of the analytical curve on the video screen (absorbance versus concentration).</p> <p>High resolution graphical display of the fast signals generated by the graphite furnace (absorbance versus time).</p> <p>When working with background correction, simultaneous display of the corrected analyte signal and the background signal.</p> <p>Hard copy printout of the screen graphics on an associated printer.</p> <p>In Continuous Mode, real-time signals can be plotted on the associated printer.</p>
Data interfaces	<p>RS-232C data output for connection of an optional printer, or for one-way communication with an external computer.</p> <p>Parallel interface for the connection of an AS-51 Flame Autosampler.</p>

Remote inputs	Terminals for remote activation of READ, AUTOZERO, S1 through S3, RESLOPE, and SEQUENCE number inhibit.
Atomizer compartment	225 mm wide x 200 mm deep. Open to the front through a hinged shield with about 7% radiation transmission (potentially harmful UV radiation is not transmitted). Integral tracks for installation of atomizers with quick-change mounts. Sample tray, 284 mm wide by 132 mm deep, removable.
Burner unit	Comprises burner assembly, nebulizer, flame igniter/sensor assembly, and burner head interlock, assembled on a quick-change mount. Premix burner design with plastic mixing chamber. Accommodates flow spoiler or (optional) externally adjustable impact head. Mixing chamber angled to ensure proper drainage. Integral drain safety siphon interlock. The burner is adjustable in vertical, horizontal and angular directions. Adjustable stainless steel nebulizer (corrosion resistant nebulizers are available). Single slot, 10 cm, all-titanium, removable burner head for air/acetylene operation (other burner heads available).
Gas control system	Integral, computer-controlled gas control system. Motor-driven pressure regulators. Gas flowrates (in liters/minute) are presented on the video screen. Burner parameters are selected via the keyboard. Automatic changeover from air/acetylene flame to nitrous oxide/acetylene flame or vice versa at a single keystroke. Full flame safety as a standard provision. Automatic monitoring of correct burner head for the flame to be used, safe fuel and oxidant flow ratios, and sufficient gas pressure. Flame sensor to monitor the flame. Drain interlock shuts down the flame if the siphon is not filled with liquid.