AAnalyst 200 atomic absorption spectrophotometer system

Expect more from flame AA

• Intuitive touch screen is easy-to-use, no training required

• Snap-in, snap-out parts are easily replaced so there is no downtime

• Rugged design can handle the toughest matrices

• PerkinElmer reliability and performance at a price that's easy-to-afford

You can expect more from your flame Atomic Absorption (AA) system than ever before. The Perkin Elmer AAnalyst™ 200 provides a no compromise approach to Atomic Absorption – from sample introduction to results. Confusing keypads and tiny screens have been replaced with a large full-color, easy-to-use touch screen, so virtually no training is required. The modular plug-and-play design ensures easy maintenance and allows you to simply switch out components for quick service, saving time and getting your instrument up and running right away.

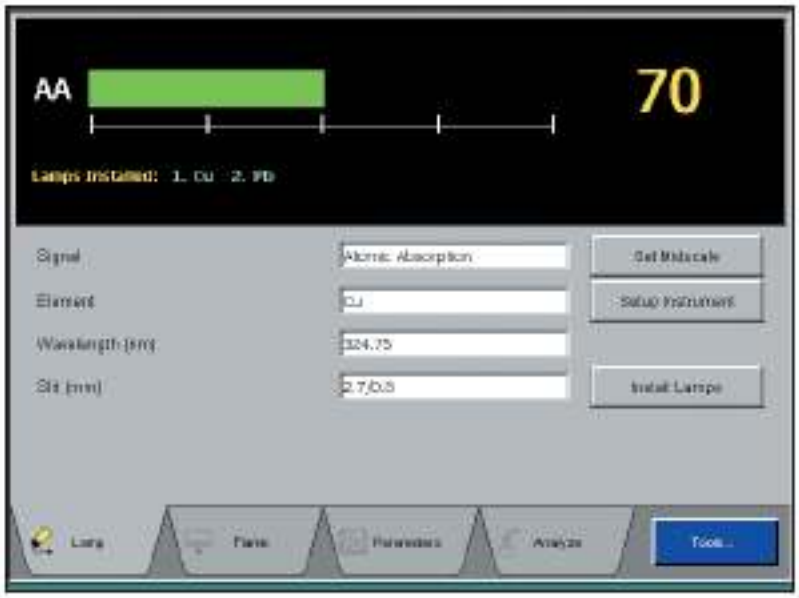
The AAnalyst 200 dramatically changes the way instruments are used and serviced, while maintaining all of the performance users have come to expect from PerkinElmer. The system incorporates innovations typically only offered on expensive research-grade instrumentation. True double-beam Echelle optics, combined with the power of a solid-state detector, deliver performance levels not typically available with flame AA. And, fully automated gas controls and integrated safety checks yield the safest flame AA system available today. The AAnalyst 200 is easy to use and easy to own, making it the

perfect choice for any laboratory needing a reliable, trouble-free solution for metals analysis.

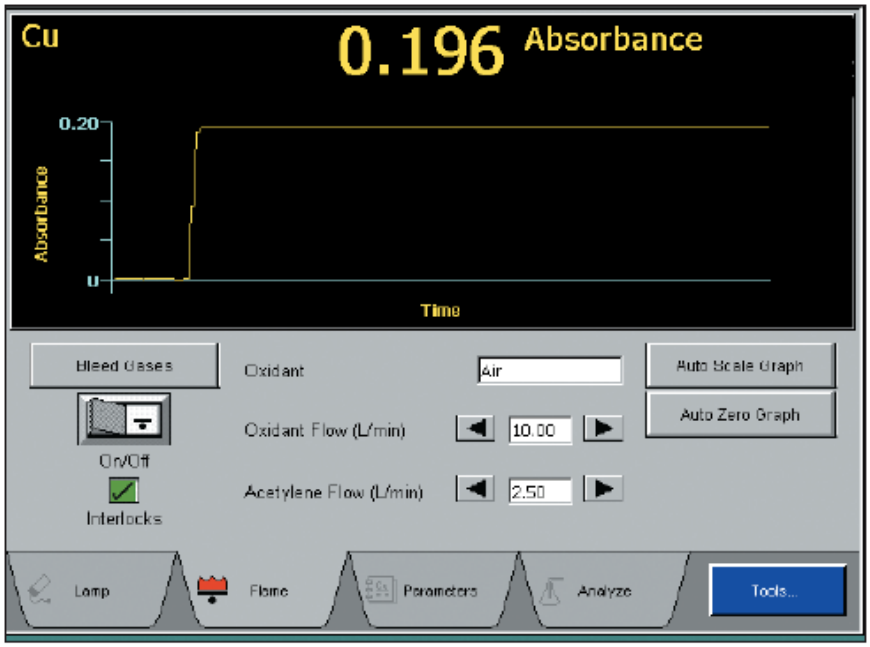
Just touch... and GO

The AAnalyst 200 features a touch-screen user interface bringing a new level of flexibility and unparalleled ease-of-use to flame AA. Operators no longer have to settle for hard-to-read systems with numeric or small monochrome displays, which provide little real information.

The large, color LCD touch screen puts AA analysis at your fingertips, literally. Simply touch the built-in screen to choose instrument options, and you are on your way. Leveraging the power of Microsoft® Windows CE®, the touch-screen interface brings many new features never available before on low-cost AA systems. This intuitive touch screen makes running
samples easier than ever before.



Lamp setup page automatically sets up the instrument when using a coded Lumina lamp.



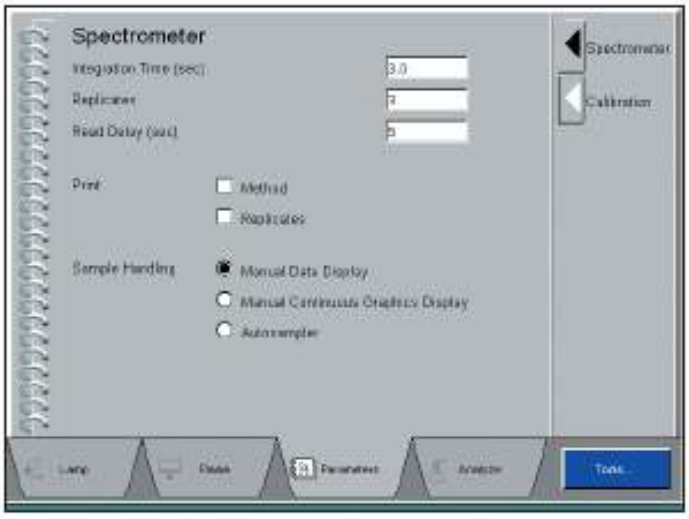
Simply touch the Flame on/off button; the fully automated gas box ensures safe operation.

Setup has never been easier

The AAnalyst 200 instantly recognizes PerkinElmer's cableless Lumina™ lamps and sets up the wavelength, slit and lamp parameters. Then the built-in lamp turret automatically aligns the lamp. Simply touch the flame ignite button, recall a stored method (or use the built-in
cookbook to set up a new method) and start the analysis.

The system allows users to select up to eight calibration standards and seven different calibration algorithms.
Samples can be analyzed manually or you can fully automate the analysis with a PerkinElmer autosampler. And, since the software is based on our popular WinLab32™ operating software, switching from the AAnalyst 200 to other PerkinElmer AA or ICP instrumentation is effortless.

We even built in support for electrodeless discharge lamps (EDLs). EDLs provide much higher light output and lifetime when compared to conventional hollow cathode lamps. They are ideal for the analysis of certain elements in the low UV range such as arsenic or selenium.



Easily set up the parameters and sample handling options for the analysis.

The Analyze Samples page provides an easy way to manually analyze samples or add an autosampler to completely automate the analysis.

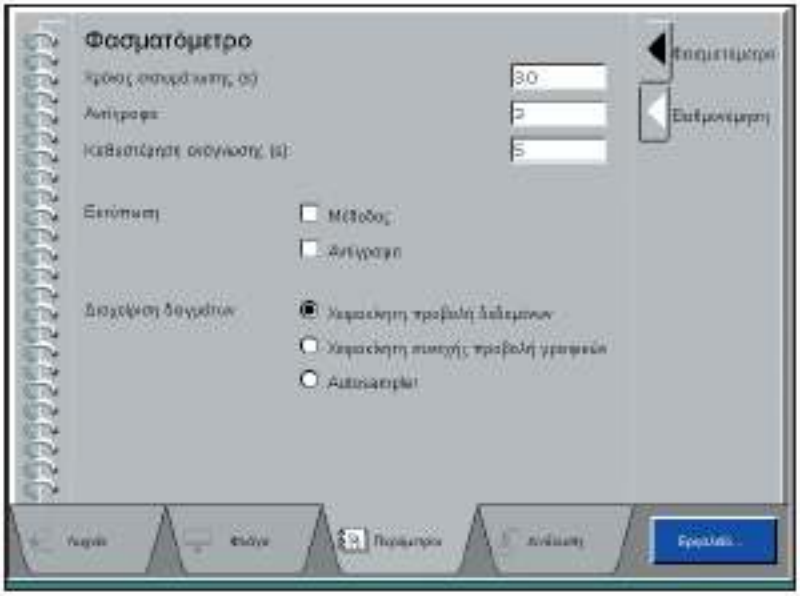
Work in your language

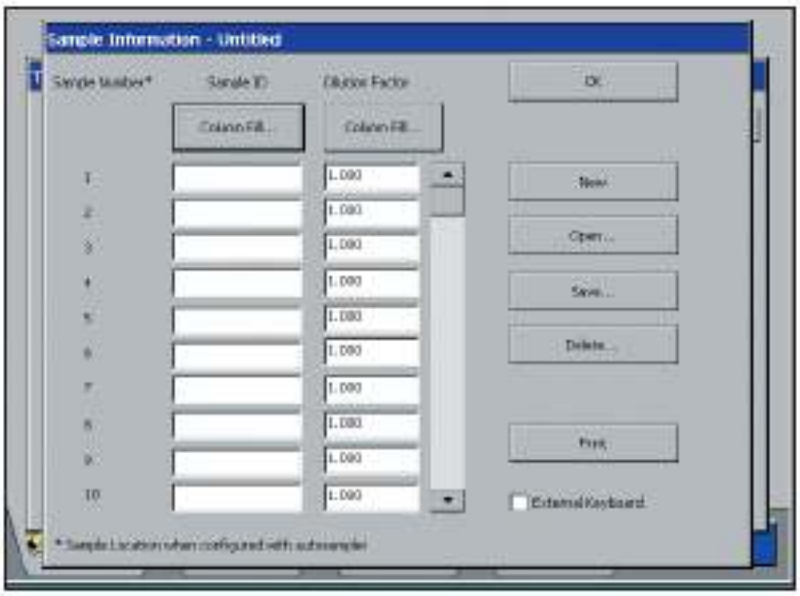
The AAnalyst 200 comes with multiple-language capability so you can work in your language of choice. And, you can easily switch to different languages. This ensures that your entire staff is at ease operating the system. So whether your lab personnel speak English, Spanish, French, Russian, Japanese, German, Italian, Greek, Polish, Portuguese or Chinese, the AAnalyst 200 makes perfect sense to everyone.

Tools you need

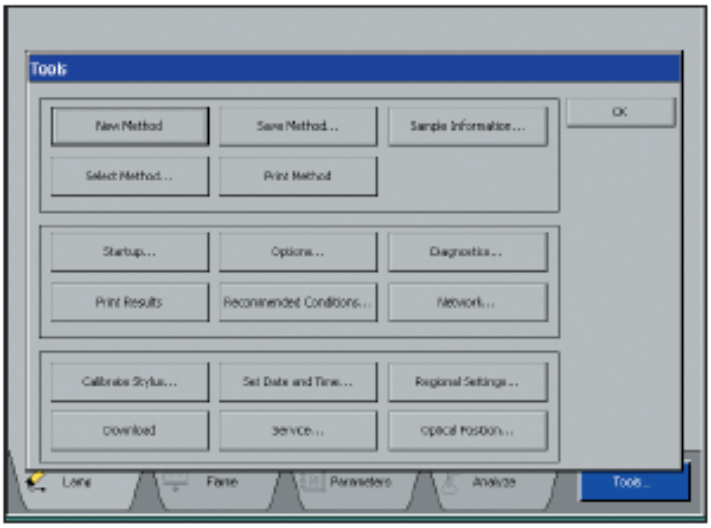
The Tools button on the touch screen provides access to powerful options that make the AAnalyst 200 even easier to use. A built-in cookbook has recommended conditions for each element. New methods can easily be created and stored. If your lab uses the same method
each day, then all the user has to do is recall the stored method and the instrument will automatically be ready to run.

Sample identification and dilution factors can be easily entered on the sample information page. These sample information files can be saved or printed. An optional external keyboard can be used to aid the user in entering sample information.





The Sample Information page allows entry of sample identification and dilution factors.



The Tools page provides powerful features that make the AAnalyst 200 easy-to-use.

Designed for easy maintenance

The sampling compartment is extremely spacious (25 cm wide by 25 cm deep) allowing easy access when you need to change burner heads or nebulizers. The burner system uses a new innovative quick-lock design. The components simply glide and lock into place in seconds. All connections are made automatically so tedious manual disconnection of gas lines to remove
the spray chamber and nebulizer is eliminated. There are no fittings to tighten or connections to make and most importantly no tools are required.

Improved sample introduction system and burner assembly makes operation safe and easy.

No downtime

The AAnalyst 200 makes troubleshooting and repair easy. All electronics are located in a single, userreplaceable module. The operator can just slide the module out from the front of the instrument and replace it with a new one. Instrument operators can replace most parts quickly and easily without a service visit. In addition, integrated diagnostics can be used
to help quickly troubleshoot the system. All error messages are clearly written to provide useful troubleshooting information, eliminating cryptic numeric codes. These capabilities ensure maximum uptime and reduce the cost of ownership.

User-replaceable modules simply slide out for easy replacement.

Rugged design for real-world applications

Whether your AA is in a state-of-the-art laboratory or a remote mining location, the AAnalyst 200 ensures dependable operation. The entire optical system in the AAnalyst 200 is sealed in a protective housing to shield it from corrosive environments. The optical system can also be purged to ensure optimum performance in extremely dirty environments.

The PerkinElmer burner is equally user friendly. The corrosion-resistant solid titanium burner heads install easily in the burner chamber, while a fail-safe mechanism ensures that the heads are always properly restrained without the need for hold-down cables. No tools are required to assemble or disassemble the burner system for routine maintenance. For convenience, a large corrosion-resistant tray is included that can

accommodate a wide variety of sample vessels. The tray is detachable and mounts quickly and easily on the front of the instrument.

Worry-free sampling

An inert polymer spray chamber provides superior performance for analysis of corrosive and high solids matrices. The spray chamber is manufactured from a high strength composite, which eliminates the need for pressure relief devices. The high precision nebulizer maximizes stability and sensitivity, even for the toughest matrices. The nebulizer is adjustable so a wide variety of sample matrices – aqueous or organic, acids or bases, dilute or concentrated – can be analyzed under optimum conditions. Whatever your
application, the AAnalyst 200 provides trouble-free operation.

Safety first

The entire instrument is not only easy-to-use and maintain, it also includes safety features normally found only on top-of-the-line AAs. The fully automatic gas box is standard on every system, providing the highest level of safety available on any flame AA. The system automatically recognizes which burner head is installed and adjusts the gas settings
correctly for the type of flame used, providing worry-free and safe operation.

The AAnalyst 200 continuously monitors critical components including burner, flame ignition, gas pressure and flow rates, drain status, and many others. If any system check indicates an unsafe operating condition, the flame is automatically extinguished. When nitrous oxide is used, the gas box will automatically light the flame under air-acetylene conditions and properly switch to nitrous oxide and adjust the gas flows to the proper levels for safe operation.

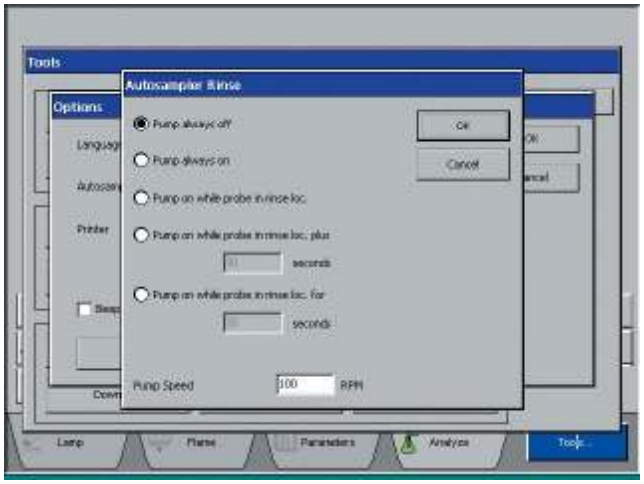
New nebulizer is designed to handle the toughest samples.

Combining double-beam optics with solidstate detector improves performance

The AAnalyst 200 features the first true double-beam Echelle optical system used in an AA. True doublebeam systems compensate for changes that may occur in lamp intensity during an analysis. The system ensures a more stable baseline and improved performance

precision and detection limits – plus simpler operation. Compared to pseudo double-beam systems offered in other systems, which move an optic or the burner head, the AAnalyst 200's true double-beam system compensates for any drift multiple times per second, rather than only once between each sample.

At the heart of the high performance optical system is a unique solid-state detector designed to provide high quantum efficiency in the UV region. When combined with the high light throughput of the Echelle optical system, even "difficult" elements such as As and Ba
can be measured with excellent signal-to-noise ratios. Plus, using a solid-state detector means that no expensive photomultiplier tubes will ever have to be replaced, once again lowering the cost of ownership.



The AS-93*plus* autosampler rinse settings can be fully controlled through the AAnalyst 200 touch-screen.

Providing integrated solutions for your application

Whatever your needs, you can trust PerkinElmer, the leader in inorganic analysis, to provide you with the right tools for the job. A variety of accessories designed for specific types of analyses are available for the AAnalyst 200. The accessories simply plug-in and are automatically recognized by the system when you turn it on.

AS-93*plus* autosampler for fully automated analysis.

For automated operation, add the AS-90*plus* or the AS-93 *plus* autosampler. PerkinElmer autosamplers come with a selfrinsing sampling probe and the flexibility to select from three sample tray types.

The AAnalyst 200 provides full control of the wash parameters of the AS-93*plus* autosampler. The rinse settings can be modified depending on your sample requirements thus improving productivity.

The MHS-15 Mercury/Hydride system can adapt your AA for the determination of Hg and hydride-forming elements.

MHS-15 Mercury/Hydride system offers superior detection limits for hydride-forming elements.

Expect more from the leader in atomic absorption

With over 40 years of experience and a product line that includes flame AA systems, high performance graphite furnace AA systems, flexible ICP-OES systems, and the most powerful ICP-MS systems, PerkinElmer is the undisputed leader in inorganic analysis. We have placed over 40,000 systems throughout the world, performing inorganic analyses every hour of every day.
With the largest technical service and support staff in the industry and a solid reputation for quality products and service, the AAnalyst 200 flame Atomic Absorption spectrometer delivers more than you would expect.

Whatever you're looking for, we've got it

PerkinElmer Life and Analytical Sciences is a world leader in chemical analysis. Our Analytical Instrument technologies serve the fast-evolving pharmaceutical, chemical, environmental and semiconductor industries, providing integrated solutions – from sample handling to interpretation and communication of test results.

As one of the best known brands in research, analysis and testing, ours was probably the first analytical instrument you ever used. In addition to our AA systems, we offer a broad range of solutions in Luminescence, UV-Vis, NIR, GC, GC/MS, HPLC, ICP, ICP-MS, Thermal Analysis, Elemental Analysis, FTIR and LIMS. There are over 60 years of experience built into every product we make. So, for leading edge R&D and demanding QA/QC, you get the speed, accuracy and reliability you seek – for the productivity you need.

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Control and data system

User interface	Complete control of the AAnalyst™ 200 through an innovative touch-screen interface. Flexible software for lamp setup, flame control, parameter selection and sample analysis. The tools menu provides access to recommended conditions, method storage and recall, data transfer and service diagnostics screens. The AAnalyst 200 supports multiple languages, including Spanish, English, French, Russian, Japanese, German, Italian and Chinese.
Display	Full-color 10.4" LCD touch screen. VGA resolution (640 x 480 pixels). Coated for maximum durability and lifetime.
Data handling	The parameters page is used for setting up the analysis. Users can select up to eight calibration standards or a reslope standard and choose from seven different calibration algorithms. Integration times are operator-selectable from 0.1 to 99.9 sec. Print choices include method, replicates and calibration curve. Signal measurement modes include time-averaged integration, manual continuous graphics and peak-height measurement. An optional footswitch to trigger a read is also available.
Sample analysis	The sample-analysis page is used for manual or automated analysis. All results are displayed on the screen. Separate buttons for blank, standards and samples allow for easy analysis. Sample-identification numbers can be added. The calibration curve can be displayed and printed with correlation coefficient, slope and intercept. Peaks can be displayed and printed when using the MHS-15 accessory.
Accessories	Automated analysis can be performed with the AS-90*plus* or AS-93*plus* autosampler. The MHS-15 can be used for the determination of hydride-forming elements and mercury.

Hardware

System	True double-beam echelle optical system. Front surfaced, reflecting optics with protective coating. Deuterium background corrector and built-in EDL power supply available on some models.
Optical system	Echelle monochromator. Focal length: 300 mm. Grating: 36 x 185 mm area, 79 lines/mm, blaze angle 76°. Fused quartz prism: 95 x 40 mm, 60°. Wavelength range: 189-900 nm. Spectral bandpass: 0.15 nm at 200 nm. The photometer optics are covered to protect against dust and corrosive vapors. For maximum protection, the optical system can be purged with an inert gas.
Detector	High efficiency, segmented solid-state detector.
Light sources	Hollow cathode lamps (HCLs) and electrodeless discharge lamps (EDLs). EDLs provide much higher light output and longer lifetime when compared to conventional HCLs. Lamp elements and recommended operating currents and slit selection are automatically recognized and set when using PerkinElmer® Lumina™ series AA lamps. Lamp alignment is completely automatic in models with a four-lamp turret.

Electronics

Processor	Internal 300 MHz GX1 with 64 Mbytes of DRAM and 128 Mbytes of Flash program memory on a PC104 interface-style printed circuit board. Includes real-time clock.
Graphics	32-bit controller on PC104 board.
Ports	RS232 C, 9-pin, parallel printer and 10BaseT Ethernet on some models.
E-box	All electronics are located in a single user-replaceable module. The operator can just slide the module out from the front of the instrument and replace it with a new one. Instrument operators can replace most parts quickly and easily without a service visit.

Gas controls and burner system

Flame gas	Fully automated gas box with computer-controlled oxidant selection with automatic gas sequencing, oxidant and fuel monitoring and control.
Control	Touch-screen actuated ignition with air/acetylene. Acetylene flow is automatically adjusted when switching to or from nitrous-oxide/acetylene operation.
Flame safety features	Fully interlocked operation prevents ignition if the proper burner head, 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 will automatically shut down the gasses if a flame is not detected. The flame is automatically and safely extinguished in the event of a power failure or when the emergency flame off button is used.
Burner system	An inert polymer mixing chamber provides superior analysis of corrosive and high solid matrices. The spray chamber is manufactured from a high strength composite, eliminating the need for pressure relief devices. The high-precision inert nebulizer maximizes stability and sensitivity. A 10-cm single-slot solid titanium burner head for air/acetylene operation is included. Optional burner heads include: 5-cm nitrous-oxide/acetylene, 10-cm 3-slot air/acetylene and 5-cm single-slot air/acetylene.
Sample area	25 cm wide x 25 cm deep sample compartment for easy access to burner components.

System specifications

Dimensions	70 cm wide x 65 cm deep (0.46 m2) x 65 cm high
Weight	49 kg

Power requirements	100-230 VAC (±10%), 50/60 Hz (±1%), 300 VA (maximum)
Technical	Classified as a laboratory instrument. Complies with the applicable European Union directives and standards for safety and electromagnetic compatibility for CE Marking, the safety requirements for Canada and the United States for CSA/NRTL certification and the FCC requirements for radiofrequency emissions. The instrument was developed and produced in compliance with ISO 9001.
Environmental	Dust free, free of vibrations, ambient temperatures: +15 °C to +35 °C with a change rate of a maximum 3 °C per hour. Relative humidity: 20% to 80% non-condensing.