contrAA 800 series

Atomic absorption spectroscopy

analytikjena
An Endress+Hauser Company

Your core element – contrAA 800

Multi-element analysis and ease of use at a manageable cost. The contrAA 800 combines the best of standard AAS instruments and ICP-OES spectrometers. Take your demand for precision and performance to the next level.

Fast multi-element analysis

- Cover the entire element range of AAS with a single lamp
- Reduce measurement time by up to 30% thanks to fast-sequential analysis
- Simultaneous measurement for selected applications

Accurate results with maximum precision

- Ensure optimal detection limits with high-resolution optics
- Flexible method development with 3D visualization of absorption spectra
- Unique spectral background correction to increase the robustness of analysis

Extended measuring range

- Determination of metals, semi-metals and even non-metals
- Coverage of concentrations from sub µg/L to %
- Flexible application in a single platform for all AAS techniques
- Skip sample digestion thanks to fully automated direct solid sampling

	contrAA 800		
Model	contrAA 800 F	contrAA 800 G	contrAA 800 D
Flame mode	✔		✔
Graphite furnace mode		✔	✔
Mercury / hydride mode	■	●	■
Solid sampling		■	■

✔ Standard
■ Optional
● HydrEA

contrAA 800
atomic absorption. redefined.

Any wavelength. Any element. Any time.

Ready to analyze any accessible element without exchanging the lamp. Comprehensive and detailed information for each sample increases confidence in results and extends your AAS applications.

Inspiration from practical experience

The contrAA 800 was developed by laboratory experts for other laboratory experts. It was designed to be as compact and as easy to use as possible. With the dual atomizer concept, both flame and graphite furnace atomization are combined in a compact sample compartment with minimized footprint and maximum performance. The automatic atomizer change and the two-dimensional atomizer alignment allow for flexible and easy handling and facilitate switching between the different atomization techniques.

contrAA 800 D with flame and graphite furnace technique in a single sample compartment

From high concentration to trace analysis

The flame atomizer features a quick-lock design for easy replacement and combines acid-resistant materials with advanced safety features to ensure reliable analysis down to the low to medium µg/L range. The outstanding performance of the transversely heated graphite furnace atomizer (THGA), combined with the stabilized temperature platform furnace (STPF) concept, minimizes matrix effects and delivers excellent detection limits for trace analysis. Real-time tube observation via an integrated furnace camera increases user ease of use. The contrAA 800 with its High-Resolution-Continuum-Source-AAS (HR-CS-AAS) combines proven atomization techniques with the unique optical system consisting of the xenon short arc lamp and a high-resolution spectrometer with CCD detector.

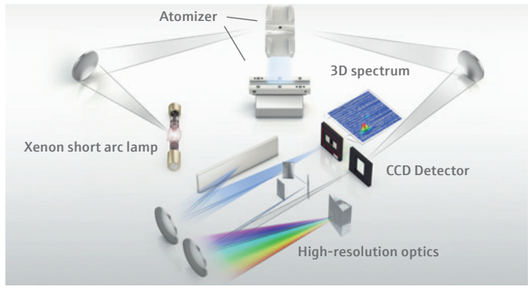
A single light source for all applications

With dramatically higher light intensity than conventional AAS sources, the system sets new standards in detection performance. Its outstanding signal-to-noise ratio enables superior detection limits, while unrestricted access to primary and secondary lines ensures reliable analysis across the full spectral range. Beyond metals and semi-metals, even non-metals such as sulfur, phosphorus, and fluorine can be quantified via molecular absorption bands, significantly extending the application scope of the contrAA 800.

Xenon short arc lamp

Measure more, handle less

With the entire spectral range continuously accessible, all relevant elements can be determined in a single aspiration step in flame mode – maximizing efficiency and throughput. Fast sequential analysis reduces measurement time by up to 30%. At the same time, sample handling can be fully automated using an autosampler with a customizable and intelligent dilution function.



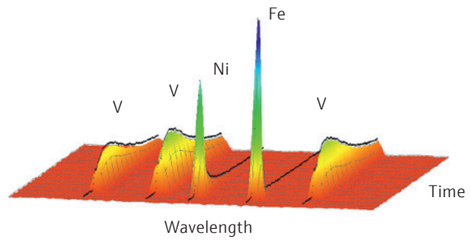
Scheme of optical systems

See what others miss

Leveraging a high-resolution spectrometer with a CCD detector, each sample is mapped with exceptional spectral detail, revealing insights beyond conventional limits. The advanced 3D spectrum visualization offers clear, visual validation of absorption lines and background evaluation, ensuring the reliable detection of spectral interferences. The result: uncompromising accuracy and complete confidence in every measurement.

Next-level signal evaluation

Unique to atomic absorption systems, advanced and fully automated software tools – including iterative baseline correction (IBC) and least-squares-based spectral correction (LSBC) – redefine productivity and confidence in results. Combined with fully customizable signal evaluation – including signal attenuation, selectable evaluation pixels, and multi-line evaluation, these capabilities take contrAA systems to a new level of atomic absorption spectrometry performance.



3D Spectrum plot of one sample with signals of different elements (vanadium, nickel, iron)

Smart software for reliable analysis

The ASpect CS software has been specifically developed for the contrAA 800. Its intuitive user interface ensures ease of use and fast onboarding, even for new users. At the same time it provides a comprehensive set of features covering virtually all application requirements.
Integrated quality control functions ensure reliable, traceable results and support compliance with the stringent standards of pharmaceutical and accredited laboratories.
Pre-configured methods and intelligent optimization routines streamline method development and guarantee optimal measurement conditions.
At the same time, advanced capabilities provide maximum flexibility for even the most demanding applications. These include simultaneous evaluation of multiple element lines and sophisticated algorithms for spectral background correction.

- Quick start with ready-to-use worksheets
- Pre-configured methods for immediate use
- Wide range of advanced evaluation tools
- Integrated quality control functions compliant with Good Laboratory Practice (GLP)
- FDA 21 CFR Part 11 compliance module

Access all areas – your universal analyzer

An extensive range of accessories significantly expands the possibilities of applications and facilitates your lab work.

Autosampler for high sample throughput – AS-F/AS-FD and AS-GF
- Enables fully automated routine analysis in a 24/7 environment
- Optimized for trace and ultra-trace detection, featuring automated cleaning to eliminate carryover
- AS-FD and AS-GF allow fully automated sample dilution to a ratio of 1:800

Minimum effort in sample preparation with direct solid sampling – SSA 600
- Dedicated autosampler for reproducible transfer of solids
- Loaded sample carrier is automatically weighed via integrated microbalance and transferred into the furnace
- Automatic handling of liquid standards and modifiers with built-in liquid dosing unit

Selective analysis of mercury and hydride-forming elements – hydride systems
- Compliant with DIN, ISO, EPA and ASTM methods for mercury and hydride analysis
- Automated sample measurement in batch or flow injection mode
- Trace analysis with combination of graphite furnace and hydride technique
- Boost mercury analysis with additional amalgamation module and mercury cell

Automatic burner head cleaning – Scraper
- Simplifies working with the acetylene-/nitrous oxide flame
- Software-triggered automatic removal of carbon deposits from the burner head
- Guarantees a continuous and reproducible measuring cycle in routine analysis

Easy handling of matrix-rich samples – switching valve technology SFS 6.0
- Automated flushing of the spray chamber in dwell time minimizing carry over effects
- Reducing sample consumption to the µL range via flow injection mode
- Reducing sample consumption of auto dilution mode

Meeting industry needs

The all-rounder in elemental analysis established in many laboratories worldwide. Convincing performance in countless applications.

Beyond one industry
Small footprint, low operating cost, and ease of use make the contrAA 800 an indispensable partner in many industries. It provides support for process monitoring and sets high standards in quality control. Thanks to its high-resolution optics, the contrAA 800 enables several new applications, particularly in research and development. Clients from various industries, such as food & agriculture, metals & mining, environment, and chemicals, put their trust in its performance and stability.

Environment
- Reliable monitoring of environmental samples, including waste, soil, effluents, and water
- Accurate determination of toxic elements and heavy metals
- Optimized for governmental and private laboratories

Food & agriculture
- Reliable quality control for food and beverage products
- Quality control for fertilizers, grains, and dietary supplements
- Accurate determination of toxic trace elements
- Precise analysis of essential minerals
- Extended capability for non-metal determination, e.g., sulfur

Pharma & life science
- Reliable quality control of feed and end products
- Monitoring of production processes
- Actionable insights for research and development teams

Geology, mining & metals
- Accurate determination of metal content in ores and pre-concentrated materials
- Direct solid sampling for trace analysis of impurities in fine metals and alloys
- Reliable process control for applications of the electroplating industry
- Ideal for industrial monitoring laboratories

Chemicals & materials
- Comprehensive analysis of raw materials, including plastics, fine chemicals, packaging materials, and cement
- Precise quantification of trace impurities in fine chemicals
- Direct solid sampling for limit analysis, e.g., in pigments
- Designed for industrial monitoring laboratories

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