ZEEnit series
Atomic Absorption Spectrometer

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General

The ZEEnit series from Analytik Jena represents the latest generation of Zeeman AAS. These compact spectrometers are equipped with a transverse-heated high-performance graphite furnace, third-generation Zeeman magnetic field control and background correction as well as a fully automatic flame mode. This robust German engineering technique allows an extended as well as comparatively inexpensive and simple application for elemental analysis from low percentage up to trace analysis in demanding sample matrices. Intelligent autosampler functions such as dilution and enrichment guarantee a high sample throughput and allow unsupervised operation even overnight. The user-friendly software with ready-to-use methods offers a quick start of the pre-programmed or customized routine worksheets for outstanding usability.

Unique features

- Graphite furnace AAS with high-power Zeeman background correction (variable up to 1 Tesla)
- Magnetic field control in 2-field and 3-field mode as well as dynamic mode
- ONE + ONE atomizer compartment for easiest switching between flame and graphite furnace mode without hardware conversion for maximal flexibility in application
- Autosampling operation for automatic calibration and sample dilution up to a dilution factor of 800
- Quickstart feature with pre-programmed ready-to-use methods for outstanding usability
- Full flexibility with wide range of accessories to maximize the productivity, safety and ease of use

Graphite furnace atomizer with Zeeman background correction

Graphite furnace

- Transvers-heated graphite furnace atomizer (THGA) in combination with the transversely arranged magnetic field
- Stabilized Temperature Platform Furnace (STPF) for non-interference and highest sensitivity
- Temperature range up to 3,000 °C with extremely fast and linear ramp rates up to 3,000 °C/s
- Temperature program can be designed with up to 20 individual steps (e.g., pyrolysis, ashing etc.)
- Pyrolytically coated graphite wall- or pin-platform tubes, self-aligning
- Comfortable replacement of graphite parts through special parking position for the furnace
- Furnace vision tool - Sample observation in the graphite tube with an additional integrated camera

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Zeeman background correction

- Highly efficient Zeeman background correction with variable transversely arranged magnetic field
- Magnetic field programmable in intervals of 0.05 Tesla up to 1.0 Tesla with a measurement frequency up to 200 Hz
- 2-field mode with variable magnetic strength for optimized background correction
- 3-field mode to expend the working range
- Dynamic mode combines 2-field and 3-field mode for automatic adaptation to maximize the working range

Graphite autosampler AS-GF

(Included in the basic system)

- Fully automatic operating sampler with 108 random-access positions, overflow vessel for rinsing the injection tube
- Unique intelligent dilution in case of out-of-calibration concentrations
- Automatic preparation of calibration solutions, sample spiking, and standard addition
- Programmable addition of modifiers
- Automatic and intelligent enrichment through multiple injections
- Intelligent depth alignment after sample uptake

Flame atomizer

Burner-nebulizer-mixing chamber-system

- 50 mm burner head for most flexibility in acetylene/air and nitrous oxide/air routines
- 100 mm burner head for improved detection limits and matrix tolerance with the acetylene/air flame
- Freely adaptable burner head rotation to adjust the sensitivity and customize the working range
- Automatic adjustment of the burner height
- Burner head recognition for high ease of use and safety
- A flame sensor monitors all flame gases to ensure highest safety standards
- Programmable ignition and shout down of flame via software

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Additional accessory for flame mode

- Standard autosampler for automated analysis of samples (AS-F)
- Intelligent autosampler for integrated automatic standard preparation, performing method of addition, and over-range dilution (AS-FD)
- Automated cleaning accessory for burner head in nitrous oxide flame operation (Scraper)
- Switching valve technology for stable flame conditions, minimizing sample uptake, and reduced carry over effects (SFS 6.0)

Optical bench

- Compact spectrometer with additional deuterium BC and dual-beam setup in flame mode
- Optimized Czerny-Turner Monochromator with high-precision wavelength settings between 185 and 900 nm
- Lamp turret with fully automatic alignment of up to eight hallow cathode lamps, automatic adjustment of lamp position, pre-heating for additional lamp
- Integrated RFID tool for working with coded lamps allowing tracking of lifetime and settings
- Integrated lamp power supply for boosted discharge HCL (super lamps)
- Wide range photomultiplier detector
- 10 years long-time-warranty

Hydride technique

- Modular Hg/hydride system for the determination of hydride forming elements and Hg in batch or flow injection mode
- Integrated flame- or electrothermal heated hydride cuvette
- Hg detection trough cold vapor technique with optional enrichment unit (gold trap) and special Hg-cuvette for improved sensitivity
- Fully automatic sample measurement with autosampler available Combination of Hg/hydride system and graphite furnace technique (HydrEA) for lowest detection limits

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Software

- Modern and user-friendly interface and evaluation software with automatic optimization routines, monitoring, and control of all parameters and functions
- Ready to use pre-programmed methods for typical single and multi-element measurements and integrated default settings and application recommendation for all elements
- Quickstart function for pre-programmed or user defined worksheets with favorites marker
- Statistic options for sample measurement and calibration with linear, nonlinear (rational and quadratic) and automatic recognition of linear/nonlinear reference curve up to 65 calibration points
- User-specific setup of result protocols up to GLP-compliant result records
- Comprehensive integrated quality assurance (AQS-module) with statistical quality control, diverse options of fully automatic monitoring of precision, and correctness of measurements and appropriate response
- Automatic identification of out-of-range results and repeat measurements under modified conditions
- 21 CFR Part 11 compliance (optional)

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