

Atomic Absorption Spectrometer **ZEE nit P series**



ZEEnit P series

External PC-controlled high-end tandem compact AA Spectrometer with fully automated 8-lamp turret with automatic alignment with Deuterium and Zeeman Background Correction. Zeeman Background Correction with "Third Generation" Magnetic Field Control.

	ZEEnit 700 P	ZEEnit 650 P
Technology	<ul style="list-style-type: none"> Flame technology Graphite furnace technology Hydride technology HydrEA technology Direct solids analysis 	<ul style="list-style-type: none"> Graphite furnace technology HydrEA technology Direct solids analysis
Optical system		
Reflecting optics with protective coating and sealed optical system with special lightproof cover.		
Monochromator	<ul style="list-style-type: none"> Optimized Czerny-Turner-Design for maximum energy throughput with two focal lengths, automated wavelength selection, peaking and slit selection Real double beam mode with beam splitter (80 : 20) Free choice of single and double beam mode in flame and hydride mode Moveable quartz polarizer with antireflection coating and UV optimised transmission 	
Wavelength range	185-900 nm	
Grating	Holographic grating with 1800 lines/ mm	
Focal length	279.7/ 252.6 mm	
Slits	Automated slit selection 0.2; 0.5; 0.8 and 1.2 nm	
Optical Bench	Optical parts are mounted on a strong and compact cast aluminium basic plate for strength and stability with a cover to prevent dust, vapour and humidity ingress	
Detector	Standard wide range UV sensitive photomultiplier	
Lamps	<ul style="list-style-type: none"> Automated 8-lamp turret with independent lamp power supply to each lamp each with two heating circuits for lamp preheating operation Integrated power supply for boosted HCLs (Super Lamps) RFID-Tool for coded lamps for automatic recognition of lamp type, element, time of operation, operation current and more 	

Background Correction

Deuterium-BGC

- Ultra fast background correction using a Deuterium Hollow Cathode lamp with high clocking frequency (300 Hz)
- Leads to a concept for optimum background compensation of up to 3 Abs with superior S/N-ratio due to the identical absorption profile of the D₂ and element lamp
- The lamp is easy to replace, adjust and optimise by the user

Zeeman-BGC

- Third Generation of magnetic field control with variable field strength offers a new concept in background correction
- High clock frequency of 200 Hz allows for a maximum number of measurement values per measurement and best optimisation for each element due to the variation of the magnetic field
- The system offers a transverse arranged bipolar magnetic field with two correction modes
- *2Field technique*: maximum field value can be selected in steps between 0.1 and 1.0 Tesla
- *3Field technique*: maximum field value can be selected in steps between 0.05 and 1.0 Tesla
- fully automated measurement of varying element concentrations without dilution due to the use of the dynamic calibration mode (combination 2Field and 3Field mode)
- fully automated optimisation of magnetic field strength

Flame System	
Burner-Nebulizer-System	<ul style="list-style-type: none"> ▪ All-titanium, 5cm/10 cm single slot burner for air/acetylene flame and 5 cm burner for acetylene/nitrous oxide flame are available and each is coded for automatic recognition ▪ They both utilise a wide slit profile to prevent against incrustation, with reproducible burner rotation and easy change over by bayonet coupling ▪ Automatic cleaning device for 5 cm burner head (Scraper) ▪ Adjustable nebulizer with internal Pt/Rh capillary and acid resistant ceramic impact bead
Spray Chamber	PPS spray chamber with mixing wing for aqueous and organic solutions
Gas Controls	<ul style="list-style-type: none"> ▪ Fully computer controlled Total Flow Gas box with dual fuel and oxidant monitoring for constant and stable control of the fuel/ oxidant ratio ▪ Computer controlled automated flame ignition with automatic input of additional gases for organic solvents
Safety Functions	<ul style="list-style-type: none"> ▪ Sensor controls ensure the use of the correct burner head, check the siphon system, monitor the liquid level in the drain vessel ▪ ensure correct operating gas pressures are maintained ▪ In the event of over pressurisation of the spray chamber, flame not detected or system power failure safety interlocks shut down the gases automatically

Graphite Furnace

- Integrated computer-controlled **Transversely Heated Zeeman Graphite Furnace**
- Graphite tube is transversely heated to provide a constant temperature profile over the entire length of the tube and to reduce matrix interferences
- Independent gas controls for the external and internal gas flows around and through the tube allow easy removal of volatile matrixes whilst protecting the tube against interference from outside air during the internal gas stop hence maximizing tube life
- The advanced furnace concept, utilising the adaptive sensor-less temperature control and emission independent temperature control ensures constant, precise, reproducible and accurate temperature conditions from analysis to analysis, batch to batch
- Change over from flame to furnace or back is extremely easy and pneumatic opening and closing of the furnace allows easy change of tubes or electrodes
- Integrable high-end vision tool - furnace camera as option

Functions

Analytical programs with up to 20 steps can be set up and all steps are easily programmable, safety interlocks monitor all important parameters

Temperature	<ul style="list-style-type: none"> ▪ Programmable up to 3000° C in steps of 1° C ▪ Maximum linear heating rate 3000° C/s
Gas Flow	<ul style="list-style-type: none"> ▪ Separate control of inert gas flow of Argon ▪ Programmable in 4 steps from 0 up to a max gas flow of 2 L/min for internal and external flow rates
Graphite Tube	System uses either pyrolytic graphite coated tubes with patented platform technique or tube atomisation without platform
Windows	Quartz end windows for optimum and best light transmission at all wavelengths
Chiller	<ul style="list-style-type: none"> ▪ A closed circuit, computer controlled cooling system is required which is optimized to save time, water and provide stable conditions ▪ Water temperature during operation is approx. 38° C with a flow rate of 3 L/min ▪ Dimensions: 260 mm x 660 mm x 560 mm

Functions

Graphite Autosampler

- The highly intelligent autosampler offers maximum flexibility and control for any sample type or matrix
- Corrosion resistant 108 sample position table with random-access positions for matrix modifiers, standards and samples
- Automatic dilutions, addition of up to five different modifiers, flexibility to make multiple injections on hot or cold tubes, preparation of standard additions
- Insert volumes from 1 to 50 µL in increments of 1 µL are user selectable
- All rinse cycles are freely programmable and an integrated pump and overflow container provide pipette tip washing and prevention of cross contamination
- The system offers automatic calibration of up to 65 points from one or more stock solutions and dilution by volume reduction, intelligent dilution in optional mixing vessel, fully automatic and PC controlled

Hydride and Hg Generation

- Modular Hg-/Hydride systems for the determination of hydride-forming elements and Hg in Batch or Flow Injection modes
- Optional amalgamation unit
- Integrated electro thermal heating unit
- Connection to autosampler is possible

HydREA technique

- Combination of hydride and graphite furnace technique for the determination of hydride forming elements
- Improved detection sensitivity - enrichment in the graphite tube

Other technical data

Dimensions (W x H x D)	1180 mm x 650 mm x 735 mm 790 mm x 645 mm x 735 mm	
Weight	230 kg	170 kg
Environmental Requirements	<ul style="list-style-type: none"> ▪ Temperature + 10° C up to 35° C ▪ Rel. humidity max. 90 % at +30° C ▪ Non condensing 	
Power Requirements	230V (±10%); 50/60Hz, slow fuse with 35 A, 2100 VA, single phase alternating current	
Technical Standards	<ul style="list-style-type: none"> ▪ Tested and designed to be compliant with the legal requirements for laboratory instrumentation and developed and produced in compliance with ISO 9001 ▪ ZEE nit series instruments are certified to comply with the requirements of the EMC standards and bear the CE Mark ▪ EN 61010-1-1; EN 61010-2-061; IEC 61010-2-061; EN 50082; EN 55011 	



Subject to changes in design and scope of delivery as well as further technical development!