SCO TECH

GERMANY

Article no.	Type	Description
0.100.008	AAS-20	Atomic Absorption Spectrophotometer, flame & graphite • Fully automatic flame and graphite furnace type, 6-lamp turret • D_2 & S-H background correction, Automatic flow control, • Air-C_2H_2 flame and graphite furnace automatic changing, • Graphite furnace automatic changing, Furnace autosampler
0.100.009	AAS-21	Atomic Absorption Spectrophotometer, flame & graphite • Fully automatic flame and graphite furnace type, 6-lamp turret • D_2 & S-H background correction, Automatic flow control, • Air-C_2H_2 flame and patented air-C_2H_2-O_2 flame • Graphite furnace automatic changing, Furnace autosampler

Required accessories for site preparation:

0.100.020	Exh4	Hood and Vent Kit, Stainless Steel with flexible tube L= 4m

Accessories for electrical site preparation

0.100.027	UPS-02	UPS (5 KV) Uninterruptable Power Supply

Accessoires for gas supply

0.100.031	REG/C_2H_2	Acetylene Pressure Regulator
0.100.032	REG/air	Air Pressure Regulator
0.100.033	REG/O_2	Rich Oxygen Pressure Regulator
0.100.035	REG/Ar	Argon Pressure Regulator
0.100.036	COMP-01	Air compressor, oil-free, 220V 50/60Hz

Accessories for system operation

0.100.040	CHILL-01	Water Chiller H50
0.100.041	HG-103A	Hydride Vapor Generator
0.100.042	GF-1E	Power supply (required for graphite furnace)
0.100.043	AS-10A	Autosampler (required for graphite furnace)
0.243.050	PC-Work station	PC with TFT screen, Keyboard, Mouse, XP-Windows

Hollow cathode lamps & Standards

Article no. Element	Article No. Standard	Sym	Element	Article no. Element	Article No. Standard	Sym	Element
0.100.101	0.100.201	Al	Aluminium	0.100.132	0.100.232	Hg	Mercury
0.100.102	0.100.202	Sb	Antimony	0.100.133	0.100.233	Mo	Molybdenum
0.100.103	0.100.203	As	Arsenic	0.100.134	0.100.234	Nd	Neodymium
0.100.104	0.100.204	Ba	Barium	0.100.135	0.100.235	Ni	Nickel
0.100.105	0.100.205	Be	Beryllium	0.100.136	0.100.236	Nb	Niobium
0.100.106	0.100.206	Bi	Bismuth	0.100.137	0.100.237	Os	*Osmium
0.100.107	0.100.207	B	Boron	0.100.138	0.100.238	Pd	Pallabium
0.100.108	0.100.208	Cd	Cadmium	0.100.139	0.100.239	Pt	Platinum
0.100.109	0.100.209	Cs	*Cesium	0.100.140	0.100.240	K	Potassium
0.100.110	0.100.210	Ca	Calcium	0.100.141	0.100.241	Re	Rhanium
0.100.111	0.100.211	Ce	Cerium	0.100.142	0.100.242	Rh	Rhodium
0.100.112	0.100.212	Cr	Chromium	0.100.143	0.100.243	Rb	*Rubidium
0.100.113	0.100.213	Co	Cobalt	0.100.144	0.100.244	Sm	Samarium
0.100.114	0.100.214	Cu	Copper	0.100.145	0.100.245	Sc	*Scandium
0.100.115	0.100.215	Er	*Erbium	0.100.146	0.100.246	Se	Selenium
0.100.116	0.100.216	Eu	*Europium	0.100.147	0.100.247	Si	Silicon
0.100.117	0.100.217	Gd	Gadolinium	0.100.148	0.100.248	Ag	Silver
0.100.118	0.100.218	Ga	Gallium	0.100.149	0.100.249	Na	Sodium
0.100.119	0.100.219	Ge	Germanium	0.100.150	0.100.250	Sr	Strontium
0.100.120	0.100.220	Au	Gold	0.100.151	0.100.251	Ta	Tantalum
0.100.121	0.100.221	Hf	*Hafnium	0.100.152	0.100.252	Tb	*Terbium
0.100.122	0.100.222	Ho	*Holmium	0.100.153	0.100.253	Te	Tellurium
0.100.123	0.100.223	In	Indium	0.100.154	0.100.254	Tl	Thallium
0.100.124	0.100.224	Ir	Iridium	0.100.155	0.100.255	Sn	Tin
0.100.125	0.100.225	Fe	Iron	0.100.156	0.100.256	Ti	Titanium
0.100.126	0.100.226	La	Lanthanum	0.100.157	0.100.257	W	Tungsten
0.100.127	0.100.227	Pb	Lead	0.100.158	0.100.258	V	Vanadium
0.100.128	0.100.228	Li	Lithium	0.100.159	0.100.259	Zn	Zinc
0.100.129	0.100.229	Lu	*Lutecium	0.100.160	0.100.260	Zr	Zirconium
0.100.130	0.100.230	Mg	Magnesium	0.100.161	0.100.261	P	Phosphor
0.100.131	0.100.231	Mn	Manganese				

Order Information

Hydride Vapor Generator

Autosampler

CE

TÜV International Certification
TÜV THÜRINGEN
CERT
ISO 9001:2008
15 100 85361
TIC

Contact

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Type: AAS-21

Atomic Absorption Spectrophotometer
(Flame/Graphite Furnace)

Safe
Simple
Sensitive
Low cost

This AAS –series is a single beam optical technology designed to utilize a high energy throughput for the best detection limits with more sensitivity. smaller size and competitive price. The Background correction was achieved by inserting the deuterium lamp directly after the hollow cathode lamp and using variable giant pulse.

The patented new technology rich oxygen air-acetylene flame analysis provides our AAS with:

➢ High sensitivity,
➢ Simple and safe operation
➢ Low analytical cost

An intelligent advanced atomization system ensures an automatic changeover of flame and graphite furnace. The automatic multi-lamp turret technology allows a precise and automatic adjustment of lamp current and optimizes the light beam position ensuring a fully automatic system control. The Fuzzy-PID technology ensures a safe and fully automated operation of the graphite furnace.

A perfect safety operation is provided with alarm in case of gas leakage, insufficient cooling water supply and over-heating. The system has an advanced electronic design and built of a high quality electronics compartments to ensure stability and accurate measurements.

The powerful Windows based software AAS Analysis is users friendly and easy to use with wide range of facilities for system control, measurements, results charts, calculations, documentation and print-out.

Innovated Rich oxygen air-acetylene flame analysis technique (AAS-10A)

The patented flame analysis technique is adopting rich oxygen air-acetylene flame as the substitution for nitrous oxide-acetylene flame for high temperature element analyses, such as Ca, Al, Ba, W, Mo, Ti, V, etc. Flame temperature is continuously adjustable between 2300-2950°C, which makes it possible to choose the best atomization temperature for different elements. The rich oxygen flame will not pollute the environment and is harmless to human bodies. It's a break-through in flame AAS analysis.

Integrated flame/graphite furnace atomization system, changeable with flame emission burner

➢ Automatically controlled changeover of the integrated flame and graphite furnace atomizer featuring easy operation and time saving eliminates human labor.

➢ A flame emission burner head can be installed to perform flame emission analysis to Alkali metals as K, Na etc.

Accurate fully automated control system

➢ Automatic 6-lamp turret, automatic adjustment of lamp current and optimization of light beam position.
➢ Automatic wavelength scanning and peak picking
➢ Automatic spectral bandwidth changing
➢ Automatic changeover between flame and graphite furnace operation, automatic optimization of position parameters, automatic ignition and automatic gas flow setting

Perfect safety protection measures

➢ Alarm and automatic protection to fuel gas leakage, abnormal flow, insufficient air pressure and abnormal flame extinction in flame system;
➢ Alarm and protection function to insufficient carrier gas and protective gas pressure, insufficient cooling water supply and over-heating in graphite furnace system.

Reliable fully automatic graphite furnace analysis

➢ Adopting FUZZY-PID and dual curve mode light-controlled temperature control technique, temperature auto-correction technique, ensures fast heating, good temperature reproducibility and high analytical sensitivity. The temperature control accuracy is better than 1%.
➢ Graphite furnace with pneumatic control and pressure lock ensures constant pressure and reliable contact.
➢ Multi-function auto sampler features automatic standard sample preparation, automatic correction of sampling probe depth, automatic tracing and correction of liquid surface height in the sample vessel, with the sampling accuracy of 1% and reproducibility of 0.3%, realizing fully automation of graphite furnace analysis.

Advanced and reliable electronic design

➢ Adopting large-scale programmable logic array and Inter I2C bus technology

➢ European type sockets and AMP adapters with high reliability to ensure long term reliability of the whole electronic system.

Easy and practical analysis software

➢ Easy-to-use AAS analysis software is made under Windows operating system, realizing fast parameter setting and optimization.

➢ Automatic sample dilution, automatic curve fitting, automatic sensitivity correction.

➢ Automatic calculation of sample concentration (content), mean value, standard deviation and relative standard deviation calculation.

➢ Multi-elements determination in sequence to the same sample.

➢ Measured data and final results can be printed out and edited in Excel format.

Features:

Compressor

Water chiller

Graphite Furnace
Power supply

Specifications:

Main Specification	
Wavelength range	190-900 nm
Wavelength accuracy	Better than ±0.25nm
Resolution	Two spectral lines of Mn at 279.5nm and 279.8nm can be separated with the spectral bandwidth of 0.2nm and valley-peak energy ratio less than 30%.
Baseline stability	0.004A/30min
Background correction	The D_2 lamp background correction capability at 1A is better than 30 times. The S-H background correction capability at 1.8A is better than 30 times.
Light Source System	
Lamp turret	Motorized 6-lamp turret (Two high performance HCLs can be mounted on the turret to increase the sensitivity in flame analysis.)
Lamp current adjustment	Wide pulse current: 0~25mA, Narrow pulse current: 0~10mA.
Lamp power supply mode	400Hz square wave pulse; 100Hz narrow square wave pulse + 400Hz wide square pulse wave.
Optical System	
Monochomator	Single beam, Czerny-Turner design grating monochromator
Grating	1800 l/mm
Focal length	277mm
Blazed Wavelength	250nm
Spectral Bandwidth	0.1nm, 0.2nm, 0.4nm, 1.2nm, auto switch over
Flame Atomizer	
Burner	10cm single slot all-titanium burner
Spray chamber	Corrosion resistant all-plastic spray chamber.
Nebulizer	High efficiency glass nebulizer with metal sleeve, sucking up rate: 6-7mL/min
Emission burner	Provided with AAS-10A/12A
Graphite Furnace	
Temperature range	Room temperature ~ 3000 °C
Heating rate	2000 °C/s
Graphite tube dimensions	(L x OD) 28 x 8 mm
Characteristic mass	Cd ≤0.8 ×10^{-12}g, Cu ≤5 ×10^{-12}g, Mo≤1 ×10^{-11}g
Precision	Cd≤3%, Cu≤3%, Mo≤4%
Detection and Data Processing System	
Detector	R928 photomultiplier with high sensitivity and wide spectral range.
Software	Under Windows operating system
Analytical method	Working curve auto-fitting; standard addition method; automatic sensitivity correction; automatic calculation of concentration and content.
Repeat times	1~99 times, automatic calculation of mean value, standard deviation and relative standard deviation.
Multi-task Functions	Sequential determination of multi-elements in the same sample.
Condition reading	With model function
Result printing	Measurement data and final analytical report printout, editing with Excel.
Port	Standard RS-232 serial port communication
Graphite Furnace Autosampler	
Sample tray capacity	55 sample vessels and 5 reagent vessels
Vessel material	Polypropylene
Vessel volume	3ml for sample vessel, 20ml for reagent vessel
Minimum sampling volume	1 μl
Repeatable sampling times	1~ 99 times
Sampling system	Accurate dual pump system, with 100 μl and 1ml injectors.
Characteristic Concentration and Detection Limit	
Normal Air- C_2H_2 flame	Cu: Characteristic concentration≤0.025mg/L, Detection limit≤0.006mg/L;
Rich-oxygen- Air- C_2H_2 flame	Ba: Characteristic concentration ≤ 0.22mg/L Al: Characteristic concentration ≤ 0.4mg/L (for AAS-10A)
Function Expansion	
Hydride vapor generator can be connected for hydride analysis	