LABOMED INC.

Model AAS-3700

Atomic Absorption Spectrophotometer AAS-3700 is a superior instrument for the research laboratory, and is an advanced and affordable system with high sensitivity that generates accurate and reproducible measurements. The AA-3700 spectrophotometer is accurate, reliable, and is an exceptional value. With its built-in, computer-controlled Air/Acetylene flame, titanium alloy burner and high-efficiency glass nebulizer design, the system provides optimal and reproducible results for micro and macro samples with high resolution.

Atomic Absorption Spectrophotometer AAS-3700 has a powerful built-in software which permits this instrument to be linked to a computer and a printer to display the photometric and spectral data on the PC monitor. Atomic Absorption Spectrophotometer AAS-3700's enhanced transmission and full reflection makes this atomic absorption spectrophotometer highly effective and reduces noise.

One of its advantages is its accurate wavelength, ease of operation, versatile software applications, and effortless optional accessory installation. This instrument is widely used for analyzing samples for Agricultural, Food, Geological, Clinical, Metal, Petrochemical, Environmental, Mining and Pharmaceutical applications.

It is easy to manipulate, and is fully automated, allowing for automatic adjustment of the lamp current and position, the burner head position, the negative voltage, and the gas flow. Safety is our primary concern, and the Atomic Absorption Spectrophotometer AAS-3700 allows for constant monitoring of the burner head, the flame, the ignition, air pressure, and drain status, to ensure the optimum functioning of the instrument.

Atomic Absorption Spectrophotometer AAS-3700 has a highly effective nebulizer, the sensitivity of the Cu $2\mu g/ml$ is more than 0.28Abs.

Labomed, Inc. is certified by ISO-9001-2013, has CE Conformity and is FDA Licensed.

Features

FEATURES AND FUNCTIONS:

The instrument has a motorized 8 hollow cathode lamp turret which allows the automatic positioning and optimization of each hollow cathode lamp by the software.

The control of the gas flows for the fuel gas (C_2H_2) of the burner is also carried out directly from the software, thus allowing optimization of the instrument for the best analytical parameters for a selected analysis.

Two methods of background correction are available. The first utilizes a Deuterium Arc lamp and the second is the proven method of Self Reversal.

High precision minimal optics ensures maximum light throughput to the computer controlled Czerny-Turner Monochromator.

The location of the wavelength and peak selection is automatically controlled from the software.

The spectral bandwidth is automated and is available with a choice of five slit sizes.

The electronic parameters for the photomultiplier tube detector, the hollow cathode lamp current and the balancing of the absorbance and background energies are controlled from the software.

The ignition of the flame is computer controlled and the various safety interlocks offer a very safe operating system.

SAFETY:

The flame conditions are continuously monitored and should the flow rates change, an audible alarm sounds.

The pressure of the support gas (oxidant) is monitored constantly. If the pressure changes then the flow of the fuel gas will be stopped and the flame will be safely extinguished.

A sensor monitors the level of liquid in the drain and will prevent ignition if too slow. The flame will also be extinguished if the level of liquid in the drain changes significantly.

A flame sensor monitors the flame and safely turns off the gas flow to the burner if the flame suddenly extinguishes.

The burner is identified by a switch making it impossible to light without the burner being fitted.

An emergency flame off button is installed in case a problem is observed. The flame can be extinguished safely.

INCLUDED ACCESSORIES

Motorized 8 hollow cathode lamp turret accessory

Atomizer accessory

OPTIONAL ACCESSORIES

HYDRIDE GENERATOR

A hydride generator is available for the determination of elements such as Arsenic, Selenium, Antimony, Tellurium and mercury at ultra low levels. The hydride generator is supplied with an absorption cell, and electrical absorption cell heater and controller and all necessary burner fittings.

FLAME AUTOSAMPLER

Sequential auto-sampler allows the automated analysis of 50 or more samples and calibration standards. The system allows for automatic update of standard values and curve parameters by using up to 8 standards, blanks and QC standards. A double wash station with facility for use of sample blank or pure water for probe wash avoids sample and standard contamination. An inert Teflon probe is supplied.

ACCESSORIES TO BUY LOCALLY OR FROM LABOMED, INC.

Computer	Buy locally
Acetylene Cylinder	Buy locally, purity should be better than 99.9%
Acetylene Regulator	Buy locally
Vent Fan	Buy locally
Oil Free Air Compressor	Buy locally or through Labomed, Inc.
Air Switch or Equivalent Switch	Buy locally

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Specifications of AAS-3700

Optic System

Wavelength Range:	190nm - 900nm
Monochromator:	Czerny-Turner configuration
Spectral Bandwidth:	0.1nm, 0.2nm, 0.4nm, 1.0nm, 2.0nm (5 steps. with automatic changeover)
Wavelength Accuracy:	± 0.25nm
Wavelength Repeatability:	0.15nm
Baseline Stability:	0.005A/30 min

Flame analysis

Sensitivity (Cu):	0.03 μg/ml/1%
Burner Head:	Titanium alloy burner
Nebulizer:	High efficiency glass nebulizer, Acid proof available as an option
Atomization Chamber:	Corrosion-resistant material
Position Adjustment:	Automatic setting of optimum height for flame burner
Safety:	Automatic ignition and of mixing air-acetylene gas with safety control

Background correction

Deuterium Lamp Background Correction:	Deuterium Lamp Background Correction: >40 times (1Abs) and Self-Reversal Background Correction: >60 times (1Abs)

Data processing

Analytical method:	flame and hydride
Determination method:	calibration curves using 1st, 2nd and 3rd order of fit , standard addition method
Repetitions:	1-20 with calculations of average , SD and RSD
Result Printout:	output of parameters, data, spectra and calibration curves

Mainframe

Light Source:	8 hollow cathode lamp turrets with 2 lamps simultaneously lit (one lamp pre-heated)
Power Supply:	110V/60Hz or 220V/50Hz
	200W (mainframe)
Dimensions:	mainframe 110 cm x 50cm x 45cm

NOTE:

The sensitivity of the Cu 2μg/ml is more than 0.28Abs..

Software Specifications

AA-Win Pro Software is a powerful and intuitive software product designed to allow control and data acquisition from the Spectro AAS-3700 Atomic Absorption Spectrophotometer. The AA-Win Pro software allows the Analyst to control all aspects of their analytical method whilst providing an extensive range of tools for data collection, storage and interpretation.
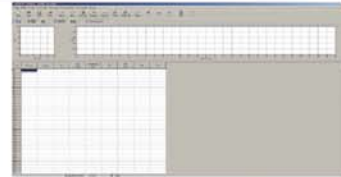

Lamp turret setup, operating and warm- up currents, along with the desired analytical wavelengths are easily selected in this configuration.

Use the sample table to perform quick measurements of both Standards and Samples. Easily append the sample table to add new samples or even revise calibration curves either by manual introduction or using an Autosampler.
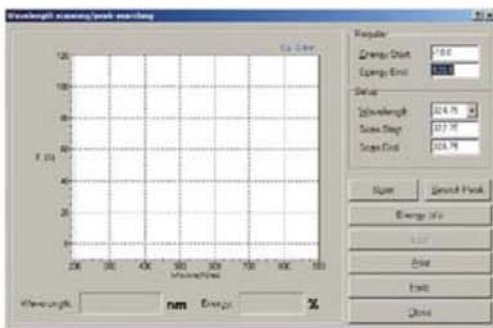
Ensure optimal peak position at the chosen analytical line by scanning the emissions spectra.
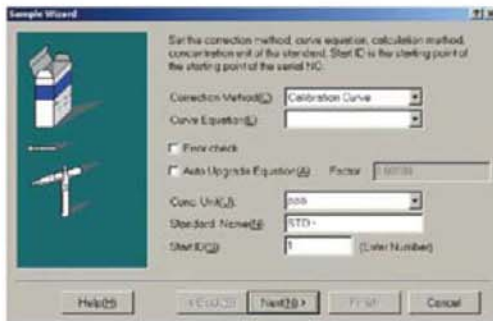

Each stage of analysis setup is made quick and simple by means of the Sample Wizard.

View up-to-date calibration curves in 1st, 2nd, or 3rd order using a standard calibration or standard addition. Perform retrospective curve fits to ensure optimum correlation.

Obtain reliable and accurate results by using the Energy control feature to manually optimize atomiser position and setup, Use the Auto-balance feature to ensure energy level, and optical alignments are optimized when using background correction.
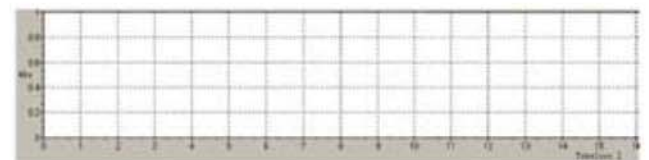
View real-time signal acquisition for flame and hydride generation analysis.

Atomic Absorption Spectrophotometer
Fully Automatic Flame System

Innovative Design

Model AAS-3700

Elements that can be analyzed with the AAS-3700

Software

- The user friendly software requires a Windows platform and operates within Win95, Win98, Win NT, Win 2000 and WinXP. The system uses a number of software wizards to guide the operator through setting up procedures.
- The software controls the automatic switch over for the Hollow Cathode Lamps and automatically optimises working parameters for the system. The software also allows manual input of data to ensure that the operator always stays in control. The software will automatically complete the configuration of the system for analysis.
- The user has the choice of two methods of background correction namely the self reversal system OR the traditional deuterium lamp background correction system.
- During the analysis cycle of the flame, the software shows the entire measurement process. This includes measured values, temperature steps, time etc. all signal and temperature data is stored for future re-call and printout.
- Detailed reporting and QC control software is included within AAWin allows printout of spectra, standard calibration curves, analysis and signal data. Full printout of operating parameters is also available for user references.
- The following methods of analysis can be carried out using the AAS-3700 system Absorption, emission, hydride and cold vapour analysis.