

# AAS-3810

## Atomic Absorption Spectrophotometer



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**Analytical Technologies Limited**

An ISO 9001 Certified Company

[www.analyticalgroup.net](http://www.analyticalgroup.net)

## ▶▶ **3810 Atomic Absorption Spectrophotometer**

- ▶▶ The multi-media graphite furnace visual system can intuitively monitor the sample's dynamic evolution during drying, ashing and residue burning process in the graphite tube. It enables convenient observation of the auto sampler's capillary injection needle reaching the best position and depth in the tube, as well as the position of the platform placed in the graphite tube. It ensures analysis precision and graphite tube's lifetime.

### **Sensitive and Reliable**

Electronic control of flame gas flow  
Closed & isolated optical system  
Suspension type of optical platform design  
Power control of graphite furnace temperature programming

### **Flexible Configuration**

Flame only, graphite furnace only, and combined flame & graphite furnace are available according to demand  
One instrument has multifunctional configuration of flame, graphite furnace and hydride generator  
4/6/8 (optional) lamp turret meets the requirement of multi-elements analysis  
Complete optional accessories support the instrument's upgrade and extension

### **Compact and Easy to Use**

Stack design of combined flame and graphite furnace makes the system compact, 10 seconds to complete flame/graphite furnace switch  
High-performance auto sampler conveniently and reliably improves laboratory efficiency  
Intelligent EZPectrum™ workstation provides simple and easy-to-use user experience and laboratory standard requirements

### **Convenient Operation**

National initiative visual system of atomization in graphite furnace  
Dynamically monitor drying, ashing and atomization process  
Intuitively control the depth and position of sampling  
Perfectly demonstrate graphite furnace sampling

## ▶▶ **3810 Flame Atomic Absorption Spectrophotometer**

- ▶▶ 3810 Atomic Absorption Spectrophotometer is fully PC controlled. It can be flexibly equipped with optional graphite furnace, auto sampler, and hydride generator.  
Unique optical mechanical design, safe and convenient flame system, optional background correction technologies, as well as convenient functions provided by the workstation, suit your pursuit of automatic and precise test results.

▶▶ **Main Features**

Compact and delicate appearance

Convenient options of background correction method

Unique optical design

Perfect automation control is easily realized by using the software workstation

Safe, reliable and convenient flame system

Multifunctional software workstation

▶▶ **Specifications**

4/6/8 (optional) lamp turret

Wavelength range: 190-900nm

Wavelength indication error:  $\leq \pm 0.3\text{nm}$

Wavelength repeatability:  $\leq 0.15\text{nm}$

Photometric range: -0.1-2.5 (A)

Spectral bandwidth: 0.1, 0.2, 0.4, 0.7, 1.0, 2.0nm

Static baseline drift:  $\leq 0.002\text{ABS}/30\text{min}(\text{Cu})$

D2 background correction capability:  $\geq 50$  times when background signal = 1A

Self reversal background correction

Power supply: AC220V $\pm$ 22V 50Hz $\pm$ 1Hz

▶▶ **Flame System**

Air/Acetylene burner head: 100mm

Nitrous oxide /Acetylene burner head: 50mm

Spray chamber: polypropylene coating

Ignition dynamic baseline stability:  $\leq 0.004\text{ABS}/30\text{min}(\text{Cu})$

Characteristic concentration:  $\leq 0.02\mu\text{g} / \text{ml} / 1\%$

Repeatability :  $\text{Cu} \leq 0.5\%$  ; (Absorbance $>0.8\text{Abs}$ )

Detection limit:  $\text{Cu} \leq 0.004\mu\text{g}/\text{ml}$

Safety system: automatically cut off gas in case of low pressure, power failure, flame out, or burner mismatched.

## ▶▶ 3810 Graphite Furnace Atomic Absorption Spectrophotometer

It achieves perfect combination of graphite furnace and automation technology. Integrate graphite furnace and auto sampler into one module, and solve the problems of auto sampler adjustment and optical path calibration during switching process. Checked by hundreds of laboratories, this graphite furnace system is extremely cost effective.

It can be used with flame atomic absorption spectrophotometer. From high concentration ppm level to trace ppt level can all be analyzed. The atomizer needs no switching, which greatly simplifies operation.

### ▶▶ Main Features

4/6/8 (optional) lamp turret , multi-lamps can be preheated simultaneously

85 position auto sampler

Max. heating speed: 3000 °C/s; Working temperature of graphite furnace: room temperature-3000 °C

Compact design, fully automatic process control

Self reversal and D2 background correction

### ▶▶ Gas Control

Separate control of in-tube gas and external gas. During the analysis, keep the gas flowing outside the tube, cut off the gas in the tube at atomization stage, effectively protect graphite tube, maximize the tube's lifetime, and gain high analysis sensitivity.

### ▶▶ Visual System of Graphite Furnace

The national-initiative unique multimedia graphite furnace visual system can intuitively monitor the sample's dynamic evolution during drying, ashing and residue burning process in the graphite tube. It enables convenient observation of the auto sampler's capillary injection needle reaching the best position and depth in the tube, as well as the position of the platform placed in the graphite tube. It ensures analysis precision and graphite tube's lifetime. Meanwhile, it is a perfect training tool.

### ▶▶ Specifications

Max. heating speed: 3000°C/s;

Working temperature of graphite furnace: room temperature-3000°C

Characteristic value: Cd≤1pg ; Cu≤10pg

Precision RSD: Cd≤3% ; Cu≤3%

Weight: 80kg

Dimension: 700\*550\*440mm

Safety: over current protection, alarm when the pressure of protection gas is low, automatically stop heating when over temperature

Power supply: 220VAC

Power: 6000W (instantaneous maximum power)

## ▶▶ **3810 Multi-elements Fast Analysis Atomic Absorption Spectrophotometer**

The outstanding feature of this product is that multi-elements can be analyzed simultaneously. It is very suitable for analyzing multiple components in one sample. It uses similar analysis mode to that of ICP, but has the price of atomic absorption spectrophotometer. It can greatly increase analysis efficiency and save sample volume. Besides, this model, according to user's demand, can also analyze one single component, working in the same mode as a flame atomic absorption spectrophotometer.

### ▶▶ **Main Features**

Simultaneously analyze 4-6 elements within one minute (similar speed to ICP) AAS price while enjoy ICP function (multi-elements analysis simultaneously)

Fast analysis, similar to the speed of ICP, test result of multiple components come out simultaneously by one sampling

Freely combine the multiple elements according to the requires of analysis

Save sample volume for multiple components analysis

Rapid change of gas flow, grating rotation, slit and hollow cathode lamps

Unique optical design greatly increases the sensitivity in visible range

Excellent mechanical and optical system plus outstanding software ensure the measurement accuracy

### ▶▶ **Specifications**

Wavelength range: 190-900nm

4/6/8 (optional) lamp turret: 1 lamp working, and 3 lamps preheating

Wavelength repeatability:  $\pm 0.1$ nm

Wavelength accuracy:  $\pm 0.2$ nm whole range

Photometric range: 0-2.5Abs

Resolution: spectral bandwidth = 0.2nm, can separate Mn two lines(279.5nm and 279.8nm), valley/peak energy ratio < 20%

Spectral bandwidth: 0.1, 0.2, 0.4, 0.7, 1.0, 2.0nm

Static baseline drift:  $\leq 0.002 \text{ ABS}/30 \text{ min}(\text{Cu})$

Weight: 80kg

Dimension: 500\*450\*430mm

rating: 1800lines/mm

D2 background correction: background signal = 1Abs, correction capability  $\geq 50$  times self reversal background correction

## ►► Flame System

| Item                              | 3810  | Instrument Design                 | Integrating structure of suspended internal and external optical path                 |
|-----------------------------------|---|-----------------------------------|---|
| Wavelength Range                  | 190-900nm   | Lamp Turret                       | 4/6/8 (optional) lamp turret (4 lamps can be preheated simultaneously)                |
| Grating                           | 1800lines/nm  |                                   |   |
| Wavelength Repeatability          | $\pm 0.1 \text{ nm}$  | Burner Head                       | Air-acetylene burner head (100mm, optional 50mm nitrous oxide-acetylene is available) |
| Wavelength Indication Error       | Whole range $\pm 0.2 \text{ nm}$  |                                   |   |
| Optical System                    | Czerny-Turner system, integrated optical platform, fully sealed optical system                            | Nebulizer                         | High-efficiency glass nebulizer   |
| Resolution                        | Spectral bandwidth = 0.2nm can separate Mn two lines (279.5nm and 279.8nm, valley/peak energy ratio <30%) | Ignition Dynamic Baseline Drift   | $\leq 0.004 \text{ ABS}/30 \text{ min}(\text{Cu})$                                    |
|                                   |   | Characteristic Concentration (Cu) | $\leq 0.025 \mu\text{g/ml}/1\%(\text{Absorbance} > 0.8 \text{ ABS})$                  |
| Spectral Bandwidth                | 0.1nm, 0.2nm, 0.4nm, 1.0nm  | Detection Limit                   | $\text{Cu} \leq 0.008 \mu\text{g/ml}$   |
| Static Baseline Drift             | $\leq 0.004 \text{ ABS}/30 \text{ min}(\text{Cu})$  | Repeatability (Cu)                | $\leq 0.5\%$  |
| Background Calibration Technology | D2 (background signal = 1Abs, background correction capability $\geq 50$ times)                           | Gas Flow Control                  | Manual  |
|                                   |   | Ignition Method                   | via buttons on the control panel  |

## ▶▶ Graphite Furnace System

| Item                           | Specification   |
|--------------------------------|---|
| Graphite Furnace Visual System | Must be configured with graphite furnace visual system, to intuitively monitor the sample's dynamic evolution during drying, ashing and residue burning process in the graphite tube, conveniently observe the auto sampler's capillary injection needle reaching the best position and depth in the tube, as well as the position of the platform placed in the graphite tube. It ensures analysis precision and graphite tube's lifetime. Meanwhile, it is a perfect training tool. |
| Graphite Furnace Protection    | Instantly stop heating and alarm in case of graphite furnace accidentally broken  |
| Heating Method                 | Longitudinally  |
| Internal Gas Flow              | Automatic adjustment  |
| Working Temperature            | Ambient - 3000°C  |
| Max. Heating Rate              | ≥3000°C/s   |
| Characteristic Value           | Cd≤1pg, Cu≤10 pg  |
| Measurement Repeatability      | Cd≤3%, Cu≤3 %   |
| Temperature Control Method     | Power control for drying and ashing, optical control max.<br>Power heating for atomization  |
| Operation Software             | Windows operation software  |
| Extended Function              | Hydride generator   |
| Dimension                      | 280*550*450 mm  |



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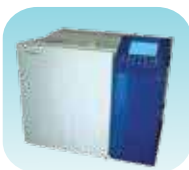
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