

## AELAB T8001S Flame & Graphite Furnace Integrated Atomic Absorption Spectrometer

### Instrument Description

The T8001S Flame Graphite Furnace Integrated Atomic Absorption Spectrometer is used to determine the content of major, trace, and semi-metallic elements in various substances. This machine adopts a PC and Chinese interface operation software, making the instrument operation simple and intuitive. By applying advanced electronic circuit systems and USB3.0 communication control, the instrument has achieved automatic adjustment of functions such as wavelength scanning, peak finding and positioning, spectral pass band width, rotating element lamp holder, atomizer height and position, gas flow rate, lamp current, and negative high voltage of photo multiplier tubes. The instrument stores reference conditions for the analysis operation of all measured elements in various analysis methods. Users can modify the operating conditions as needed, and save the operating conditions, working curves, and test results to disk, which can be recalled for use and processing.



### Flame System

- Pure titanium atomization chamber

Effectively prevents acid gas corrosion and has a longer service life.

- Implementing Acetylene Flow Control with a Mass Flow Controller

Make the acetylene flow continuously adjustable and dynamically monitor the flow, making it easy to use, safe and reliable.

- Efficient glass atomizer

Adopting a dedicated and efficient glass atomizer, the atomization efficiency is high, and maintenance and replacement are convenient.

- More security measures: 1) Acetylene leakage monitoring; 2) Acetylene pressure monitoring

3) Air pressure monitoring; 4) Combustion head status monitoring; 5) Flame status monitoring; 6) Water seal status monitoring

### Graphite Furnace System

- Integration

The graphite furnace power supply and atomic absorption host are located in one instrument, which shortens the cable length, reduces the electromagnetic interference of the graphite furnace power supply to the outside world, and improves the heating efficiency of the graphite tube.

- Graphite furnace has high temperature control accuracy and fast heating speed

By using high-power transformers, micro resistance cables, and light controlled heating methods, combined with software and hardware temperature correction systems, the temperature control accuracy in the high temperature section can reach  $\pm 1\%$ .

- More safety measures to make sample analysis safer and more reliable

1) Cooling water flow monitoring; 2) Graphite tube temperature alarm monitoring

3) Carrier gas pressure alarm monitoring; 4) Graphite furnace temperature alarm monitoring

- Automatic carrier gas flow control

The internal and external gases of the graphite furnace are automatically controlled by the computer according to the software heating process.

- 150 bit rotary graphite furnace automatic sampler

The polar coordinate turntable graphite furnace automatic sampler can achieve a common automatic sampler for flame and graphite furnace, with high positioning accuracy, stable and reliable operation, and convenient use and maintenance.

### Technical Index

- Complete machine

Monochromator type:	Czerny-Turner	Wavelength range:	190nm~900nm
Wavelength accuracy:	$\pm 0.2\text{nm}$	Wavelength Repeatability:	$< 0.05\text{nm}$
Spectral bandwidth:	0.1/0.2/0.4/0.7/1.4 nm Automatic switching of five gears		

- Flame system

Precision:	$< 0.8\%$ (flame method for copper measurement)	Static stability:	0.003 Abs (static)
Detection limit:	$< 0.008\mu\text{g/mL}$	Dynamic Stability:	$< 0.05\text{nm}$
Characteristic Concentration:	$< 0.025\mu\text{g/mL}/1\%$ (Flame method for measuring copper)		

- Graphite furnace system

Temperature control range of graphite furnace:	Room temperature-3000 $^{\circ}\text{C}$
Heating rate of graphite furnace:	3000 $^{\circ}\text{C}/\text{s}$
Precision of cadmium (Cd) measurement in graphite furnace:	$\leq 2\%$ (Automatic injection mode)
Precision of cadmium (Cd) measurement in graphite furnace:	$\leq 5\%$ (Manual injection mode)
Detection limit of cadmium (Cd) in graphite furnace:	$\leq 1\text{pg}$ (Automatic injection mode)
Detection limit of cadmium (Cd) in graphite furnace:	$\leq 2\text{pg}$ (Manual injection mode)
Graphite furnace measurement of cadmium (Cd) characteristic quantity:	$\leq 0.5\text{pg}$
Power supply:	220V $\pm 22\text{V}$ , 50Hz $\pm 1\text{Hz}$ , 5KW (peak value)