

# Atomic Absorption SPECTROPHOTOMETER



## ATOMIC ABSORPTION SPECTROPHOTOMETER LAAS-100 SERIES

Labocon Atomic Absorption Spectrophotometer LAAS-100 Series spectrophotometer, which offer superior base line stability of 0.002A/30min with advance optical system to ensure simple and reliable solution for trace elemental analysis.

### Features

#### FLAME

- **Gas Control**
  - Software controlled quick gas conversion and safety protection device used to analyse air-acetylene flame and nitrous oxide-acetylene flame
- **Spray Chamber Metal Glass Spray**
  - Burner Corrosion resistant titanium burners available for both air/acetylene and nitrous-oxide acetylene
- **Safety System**
  - Safety interlock mechanism that monitors the burner type, burner fitted, gas pressures. Flame on/off sensors; Power failure automatic shutdown. Liquid trap system, pressure relief plug and flame shield to protect from UV radiation
- **FOR MODEL LAAS-101:**
  - Double beam
  - Automatic compensation of light source and wavelength drift caused by temperature variation and electronic circuit drift
  - Eliminates the need for pre-heating of cathode lamp to analyse the sample quickly
  - Gas path system equipped with precision pressure and current stabilizing devices to obtain stable flame at low noise
  - A very fine light beam passes through flame providing a precise analytical test with low characteristic concentration
  - Adopts total reflection system to eliminate color difference
  - Multi-functional analysis mode for flame absorption, flame emission, graphite furnace atomic absorption and hydride generation
  - Quick gas conversion and safety protection device used to analyse air-acetylene flame and nitrous oxide-acetylene flame

- Optional accessories:
  - RS232 software
  - Graphite tubes
  - Graphite furnace system
  - Hydride generator
  - Nitrous oxide generator
  - Nitrous oxide regulator
  - Acetylene regulator
  - Recirculating cooling water system
  - Printer
- **FOR MODEL LAAS-102, LAAS-103:**
  - Czerny-Turner grating monochromator
  - Grating density of 1800 lines
  - Anti-corrosive plastic sprayed chamber
  - Metal glass spray set
  - Photomultiplier tube as detector
  - Optimized 3D lights for maximum energy
  - Can distinguish between manganese light
  - 0-10mA and 400Hz four lamps and optional six lamps with auto switch
  - Air cooled pre-mixed 100mm single slit titanium burner
  - Less than 1% precision
  - Air-acetylene and oxygen enriched air-acetylene flame method
  - Hydride generation spectrometry
  - Automatic calibration, curve fitting and concentration calculation
  - Automatic calculation of average concentration, standard deviation, relative standard deviation
  - Acetylene gas leakage alarm
  - Rapid and convenient test results opened in office software
  - Software remote control to solve technical problems
  - Windows XP/Vista operating system
  - Model LAAS-103: Equipped with graphite furnace
- Optional accessories:
  - RS232 software
  - Graphite tubes
  - Graphite furnace system
  - Hydride generator

- Nitrous oxide generator
- Nitrous oxide regulator
- Acetylene regulator
- Recirculating cooling water system
- Printer

## Application

Labocon Atomic Absorption Spectrophotometer LAAS 100 series is widely used in analytical chemistry protocols, applications such as food and drug safety, clinical diagnostics, petrochemical, agricultural, environmental monitoring.

## Specification

Model	LAAS-101	LAAS-102	LAAS-103
Wavelength Range	190-900nm		
Wavelength Accuracy	≤±0.5nm	±0.25nm	
Wavelength Repeatability	≤0.3nm (single direction)	0.05nm	
Spectral Bandwidth	0.2, 0.4, 0.7, 1.4, 2.4, 5.0nm	0.2, 0.4, 1.0, 2.0nm	
Temperature Range	None	10-35°	
Working Humidity	None	≤80%	
Resolution	<40%	<20%	
Baseline Stability	≤0.004Abs/30min	0.002A/30min	
Characteristic Concentration Limit	Cu: ≤0.04g/ml/1%	Cu: 0.025g/ml/1%	
Detection Limit	Cu: 0.008g/ml	Cu: 0.006g/ml	
Background Calibration	Greater than 30 times	-	
Overall Dimension	1220x770x730mm	1000x400x470mm	
Weight	160 kg	70 kg	
Power	660W	150W	
Power Supply	220V 50Hz		
Catalog No.	9523126164	9523127164	9523128164

## ATOMIC ABSORPTION SPECTROPHOTOMETER LAAS-200 SERIES

Labocon Atomic Absorption Spectrophotometer LAAS-200 Series are single beam spectrophotometers designed for determining the concentration of different elements within a sample.

These systems offer superior base line stability of 0.004A/30min with advance optical system to ensure simple and reliable solution for trace elemental analysis.

### Features

#### FLAME

- **Gas Control**
  - Software controlled quick gas conversion and safety protection device used to analyse air-acetylene flame and nitrous oxide-acetylene flame
- **Spray Chamber Metal Glass Spray**
  - Burner Corrosion resistant titanium burners available for both air/acetylene and nitrous-oxide/acetylene
- **Safety System**
  - Safety interlock mechanism that monitors the burner type, burner fitted, gas pressures. Flame on/off sensors; Power failure automatic shutdown. Liquid trap system, pressure relief plug and flame shield to protect from UV radiation
  - Czerny-Turner grating monochromator
  - Anti-corrosive plastic sprayed chamber
  - 10cm single slot all-titanium burner
  - Highly efficient metal sleeve glass nebulizer with sucking up rate:6-7ml/min
  - R928 Photomultiplier detector with high sensitivity and wide spectral range
  - Hydride analysis through Hydride vapor generator
  - Advance 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
  - Sequential measurement for multi-element determination in one sample
  - Auto-correction of sensitivity
  - Easy to use AAS analysis software under Windows operating system
- **For Model LAAS-201:**
  - Microprocessor with auto-control and data processing function

- Less automated reasonable design provides economical usage
- Digital LEC display
- 2-lamp turret
- Manual adjustment for wavelength and slit
- Manual adjustment of vertical, horizontal positions and the rotation angle of the burner
- Automatic adjustment of light source power
- Auto-balance between light energy and negative high-voltage
- Automatic calculation of mean, standard deviation and relative standard deviation in the range of 1-99
- Automatic curve fitting with 3-7 standards
- Auto-correction of sensitivity
- Self-check function to check the current status of the instrument
- Simple and easy operation

## **FOR MODEL LAAS-202, LAAS-203, LAAS-204:**

- Adopts oxygen rich air-acetylene flame analysis technique
- Flame atomization system with flame emission burner
- Accurate fully automated control system with wavelength scanning, spectral bandwidth change
- Automatic adjustment of lamp current and optimization of light beam position
- 4-lamp and 6-lamp turret
- Automatic calculation of concentration and content
- RS232 interface

## **FOR MODEL LAAS-205, LAAS-206, LAAS-207:**

- Adopts oxygen rich air-acetylene flame analysis technique
- Flame atomization system with flame emission burner
- Accurate fully automated control system with wavelength scanning, spectral bandwidth change
- Fully automatic graphite furnace analysis
- FUZZY-PID and dual curve mode temperature control technique
- Auto-correction of temperature ensure rapid heating with good temperature reproducibility and high sensitivity
- Automatic adjustment of lamp current and optimization of light beam position
- 4-lamp and 6-lamp turret
- Auto-correction of sensitivity, automatic curve fitting and sample dilution
- Automatic calculation of concentration and content
- RS232 interface



## FOR MODEL LAAS-208:

- Adopts oxygen rich air-acetylene flame analysis technique
- Flame/graphite furnace atomization system with flame emission burner
- Accurate fully automated control system with wavelength scanning, spectral bandwidth change
- Fully automatic graphite furnace analysis
- FUZZY-PID and dual curve mode temperature control technique
- Auto-correction of temperature ensure rapid heating with good temperature reproducibility and high sensitivity
- Automatic adjustment of lamp current and optimization of light beam position
- Motorized 6-lamp turret
- Auto-correction of sensitivity, automatic curve fitting and sample dilution
- Automatic calculation of concentration and content
- Sampling volume: 1 $\mu$ l
- Accurate dual pump system, with 100 $\mu$ l and 1ml injectors
- RS232 interface

## Application

Labocon Atomic Absorption Spectrophotometer LAAS 200 series is widely used in analytical chemistry protocols, applications such as food and drug safety, clinical diagnostics, petrochemical, agricultural, environmental monitoring.



LAAS - 208

## Specification

Model	LAAS-201	LAAS-202	LAAS-203	LAAS-204
Wavelength Range	190-900nm			
Wavelength Accuracy	±0.5nm	±0.25nm		
Spectral Bandwidth	0.1, 0.2, 0.4, 1.2nm			
Resolution	Less than 30%			
Baseline Stability	0.005A/30min	0.004A/30min		
Flame Temperature	None	2300-2950°C		
Grating	1800 lines/mm			
Focal Length	277mm			
Blazed Wavelength	250nm			
Concentration and Detection Limit	Cu: Characteristic concentration≤0.025mg/L Detection limit≤0.006mg/L	Cu: Characteristic concentration≤0.025mg/L Detection limit≤0.006mg/L Ba: Characteristic concentration ≤ 0.22mg/L Al: Characteristic concentration ≤ 0.4mg/L		
Overall Dimension	1020x490x540mm			
Weight (Net/Gross)	80/- kg			
Catalog No.	9523129442	9523130442	9523131442	9523132442



Model		LAAS-205	LAAS-206	LAAS-207	LAAS-208
Wavelength Range		190-900nm			190-900nm
Wavelength Accuracy		Better than $\pm 0.25\text{nm}$			Better than $\pm 0.25\text{nm}$
Spectral Bandwidth		0.1, 0.2, 0.4, 1.2nm			0.1, 0.2, 0.4, 1.2nm
Resolution		Less than 30%			Less than 30%
Baseline Stability		0.004A/30min			0.004A/30min
Flame Temperature		2300-2950°C			2300-2950°C
Graphite Furnace	Temperature Range	RT-3000°C			RT-3000°C
	Heating Rate	2000°C/s			2000°C/s
	Graphite Tube Dimensions	28x8mm			28x8mm
	Character Mass	$\text{Cd} \leq 0.5 \times 10^{-12}\text{g}$ , $\text{Cu} \leq 5 \times 10^{-12}\text{g}$ , $\text{Mo} \leq 1 \times 10^{-11}\text{g}$			$\text{Cd} \leq 0.5 \times 10^{-12}\text{g}$ , $\text{Cu} \leq 5 \times 10^{-12}\text{g}$ , $\text{Mo} \leq 1 \times 10^{-11}\text{g}$
	Precision	$\text{Cd} \leq 3\%$ , $\text{Cu} \leq 3\%$ , $\text{Mo} \leq 4\%$			$\text{Cd} \leq 3\%$ , $\text{Cu} \leq 3\%$ , $\text{Mo} \leq 4\%$
Grating		1800 lines/mm			1800 lines/mm
Focal Length		277mm			277mm
Blazed Wavelength		250nm			250nm
Concentration and Detection Limit		Cu: Characteristic concentrations $\leq 0.025\text{mg/L}$ Detection limit $\leq 0.006\text{mg/L}$ Ba: Characteristic concentration $\leq 0.22\text{mg/L}$ Al: Characteristic concentration $\leq 0.4\text{mg/L}$			Cu: Characteristic concentration $\leq 0.025\text{mg/L}$ Detection limit $\leq 0.006\text{mg/L}$ Ba: Characteristic concentration $\leq 0.22\text{mg/L}$ Al: Characteristic concentration $\leq 0.4\text{mg/L}$
Blazed Wavelength	Main Unit	1020x490x540mm			250nm
	Graphite Furnace	420x420x460mm			420x420x460mm
	Auto sampler	None			400x290x290mm
Weight (Net/ Gross)	Main Unit	80/- kg			400x290x290mm
	Graphite Furnace	50/- kg			140 kg
	Auto sampler	None			15 kg
Catalog No.		9523133442	9523134442	9523135442	9523136442



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