

ICP-6810-A2 Full Spectrum Direct Reading Connected Coupled Emission Spectrometer

Application field

ICP-6810-A2 is a full-spectrum direct-reading inductively coupled plasma emission spectrometer used to determine the content of trace and trace elements in different substances (soluble in nitric acid, hydrochloric acid, hydrofluoric acid, etc.). It is widely used in environmental protection, petroleum Products, rare earths, semiconductors, geology, metallurgy, chemical industry, clinical medicine, food, biological samples, criminal science, agricultural research and other fields.

Working environment

- Storage and transportation temperature: 5°C-40°C
- Relative humidity during storage and transportation: ≤85%
- Atmospheric pressure: 86-106 kPa
- Power supply adaptability: 220±22VAC 50±1Hz
- Working humidity: ≤70%
- Working temperature: 15°C~30°C

Instrument host

★ Optical system

1. Radial observation and axial observation design, suitable for element measurement from sub-ppm to high content.
2. Echelle grating and prism cross-dispersion structure, using ultra-pure SiO₂ prism, high optical path transmission efficiency, ensuring element measurement in the deep ultraviolet region.
3. Optimized optical design, using aspherical optical elements to improve imaging quality and spectral collection efficiency.
4. The multi-point filling technology of the light chamber shortens the filling time of the light chamber, improves the sensitivity and stability of the ultraviolet spectrum, and enables measurement immediately after
5. The light chamber has an independent gas path and can be filled with nitrogen or argon.
6. Optical system: medium-step two-dimensional spectroscopic optical system, focal length 400mm
7. Spectral line range: 165nm-950nm
8. Grating specifications: echelle grating, size: 100mm x 50mm
9. Prism: ultra-pure SiO₂ material
10. Stray light: The equivalent background concentration of 10000μg/ml Ca solution at As189.042nm is <2ug/ml
11. Temperature control: 38±0.1°C, temperature can be set

★ Detector

1. Large-area CCD detector, full-spectrum response, high UV quantization efficiency, and one exposure to complete the collection and reading of full-spectrum spectral signals, thereby obtaining faster and more accurate analysis results.
2. Largest target surface size among similar products, million-level pixels, single pixel area 24μm
3. Detector: Scientific research grade CCD detector, anti-saturation overflow
4. Number of pixels: 1024x1024, pixel area: 24μm x 24μm
- 5 Working temperature: <-40 degrees Celsius, stabilization time <3 minutes
- 6 Quantization efficiency: without coating, the quantization efficiency can reach more than 75%



★ RF generator

1. All-solid-state RF generator has small size, high efficiency, fully automatic load matching, fast speed and high precision. It can be adapted to the testing of various complex matrix samples and volatile organic solvents, and has excellent long-term stability.
2. Cold cone tail flame elimination technology minimizes the self-absorption effect and ionization interference, thereby obtaining a wider dynamic linear range and lower background, broadening the instrument detection range, and ensuring accurate measurement results.
3. Simple torch installation and positioning design, rapid positioning, and accurate position reproduction.
4. It has a low-power standby mode, which reduces the output power and gas flow during standby, and only maintains plasma operation, saving usage costs.
5. * upgraded solid-state power supply technology, with solid-state RF power output protection device, small size, high output efficiency, stable output power, with safety protection functions such as water path, gas path and overload, improving the safety of the instrument and reducing Instrument failure rate. (Provide supporting materials issued by authoritative agencies at or above the provincial level, and the purchaser has the right to verify the originals when supplying goods)
6. Output power: 700W-1600W continuously adjustable by 1W
7. Power stability: $\leq 0.1\%$
8. Oscillation frequency: 27.12MHz
9. Frequency stability: $\leq 0.01\%$
10. Matching method: automatic matching
11. Electromagnetic field leakage radiation intensity: $< 0.5\text{V/m}$

★ Sample introduction

1. The instrument is equipped with a series of optimized sampling systems, which can be used for testing organic solvents, high-salt/complex matrix samples, hydrofluoric acid-containing samples, etc.
2. Use an integrated torch, which is easy to maintain, fast to change and low in use cost.
3. Use a mass flow controller to control the flow of cooling gas, auxiliary gas and carrier gas. The flow rate is continuously adjustable to ensure long-term stability of test performance.
- 4.* It has a two-inlet and six-out waterway integrated feedback diverter system to ensure the control of the entire instrument's waterway system. Easy to assemble, smooth and beautiful appearance, easy to use with instruments and equipment. Extend the life of the instrument water system. (Provide supporting materials issued by authoritative agencies at or above the provincial level, and the purchaser has the right to verify the originals when supplying goods)
5. 4-channel 12-roller peristaltic pump with continuously adjustable pump speed to ensure sample introduction stability and fast cleaning function.
6. Torch coil: 3 turns
7. Torch: Three concentric quartz torch: outer diameter 20mm; there are many models available according to the size of the central channel. (Color pages and physical pictures are required for support)
8. Atomizer: concentric atomizer or parallel channel atomizer, outer diameter 6mm, optional standard atomizer, high salt atomizer, hydrofluoric acid atomizer.
9. Spray chamber: cyclonic spray chamber, optional double-cylinder spray chamber and HF-resistant spray chamber.
10. Peristaltic pump: 4 channels, 12 rollers, continuously adjustable speed.
11. Argon gas consumption: 8L/min~18L/min
12. Cooling gas: 0.00L/min~20.00L/min, accuracy 0.01L/min
13. Auxiliary gas: 0.00L/min~2.00L/min, accuracy 0.01L/min
14. Carrier gas: 0.00L/min~2.00L/min, accuracy 0.01L/min

★ **Control system :**

1. Humanized interface design, smooth and easy to understand and easy to make. The software system optimized for analysis applications proposes complex method development and can quickly carry out analysis operations.
2. Multi-window multi-method analysis program, which can measure, edit and view different method data at the same time.
3. The software spectral line library has a library of more than 70,000 spectral lines, which intelligently prompts potential interfering elements to help users choose reasonable spectral lines for analysis.
4. Provides a standard series editing mode for meals, supporting testing first and then setting standards.
5. The software supports analysis methods such as standard curve method and standard addition method, and has multiple data processing methods such as indoor blank, internal standard correction, and interference correction.
6. Easy installation mode setting, viewing test result display, and multiple report output formats.

★ **Complete machine technical index**

1. *Observation method: radial observation and axial observation design
2. Liquid content: 0.01ppm~several thousand ppm
3. Solid content: 0.001%~70%
4. Repeatability: (i.e. short-term stability) relative standard deviation RSD<1%
5. Stability: Relative standard deviation RSD<1.5% @2 hours
6. Element detection limit (μg/L): 1ppb~10ppb for most elements

Configuration requirements

1. Inductively coupled plasma emission spectrometer host: one
2. Spectrometer analysis software: one set
3. Quartz rectangular tube: two pieces
4. Imported atomizer: one
5. Double-tube mist chamber: two
6. Cooling circulating water: one unit, cooling capacity 2000W
7. Brand computer: Coolui dual-core 1.6G PC, its configuration is no less than: 4G memory, 320G hard drive, 19" LCD monitor
8. Brand Printer: Laser Printer
9. Stabilized power supply: one

Service requirements

1. Accessories of the required types of instruments can be purchased within the next five years, and will not be affected by the supplier's development and upgrading of the instrument.
2. The supplier provides samples, usage and installation, debugging, maintenance manuals, etc.
3. The supplier's technical personnel will go to the user's site for free installation and debugging. The supplier guarantees to provide professional operation training for 3 people per unit.
- 4.* Identification report from a third-party testing agency (copies of relevant certification materials from Chinese authoritative agencies are required and stamped with the official seal of the manufacturer for future reference)
5. *ISO9001 quality management system certification; environmental system certification ISO 14001; occupational health system certification ISO 45001; FCC certification; (Copies of relevant certification materials from international authoritative organizations and stamped with the official seal of the manufacturer are required for future reference)
6. CQO certification issued by the International Quality Supervision Bureau;
7. * EU CE certification, EU RoHS certification, US FDA certification (copies of relevant certification materials from international authoritative organizations are required and stamped with the official seal of the manufacturer for future reference)