

SP-3400 Gas Chromatography



1 Usage:

SP-3400 series Gas Chromatographs use the newest technique introduced from Varian Associates in the United States. With the international standard production, its technical feature and index are in the high level of the world. The gas valves and the key component of detectors are imports from America. Widely used for petrol-chemistry, environment protection, epidemic prevention, pharmacology, scientific research, etc.

2 Technical feature:

• Self-diagnostic function:

(1) Core tests; (2) Automatic tests; (3) Extended tests; (4) Basic tests;

Monitor the status of GC continuously. Once finding faults, it will display the information, show the wrong zone and the settling method.

• Self-protective function:

(1) Overrun temperature protection; (2) Short circuit hint; (3) TCD filament protection; (4) FID flameout hint;

(5) PFD exposed-light protection; (6) Keyboard locked function utilizing password; more kinds of protect function ensured GC's normally running.

• Simple operation, powerful automation:

(1) All parameters can be entered through keyboard with prompt function;

(2) Storing 4 complete chromatography analysis methods which can be activated automatically;

(3) Can be connected with Autosampler;

(4) Parameters can be modified instantly while the GC is running;

(5) Chromatography analysis method can be activated for 99 times repeatedly at one time. It's especially suitable for in nobody guarding situation.

• **More choices of injectors:**

(1) On-Column Injector for Packed Column; (2) Flash Vaporization Injector for Packed Column

(3) Automatic or manual gas inject valve; (4) Headspace sampler; (5) Thermal desorption system

(6) Split/Splitless Capillary Injector; Three Injectors or two Split/Splitless Capillary Injectors can be fixed on GC.

• **More choices of detectors:**

(1) TCD; (2) FID; (3) ECD; (4)FPD; (5) TSD

Maximum of two TCD installed or three different kind of detectors.

• **Reactor:** (1) Internal; (2) External

• **Time programming of Detectors:**

Each of detectors has 5-ramp programmable time control, output-signal, attenuation range, and polarity can be changed automatically.

• **Time programming of external events:**

Provide 4 external events with 20-ramp programmable time control; the optional GC relays may be used to automate valves, to operate split/splitless capillary injectors, or drive auxiliary functions, or switch signal between detectors A and detector B during a run.

• **According to user's request, many kind of special-purpose GC canbe provided, realizing multidimensional methods of analysis.**

3 Technical index:

• **Column oven:**

Operating temperature range: ambient temperature to 420°C;

Owning dual opening-door at the back of the colume oven;

Cooling time: 250°C to 50°C in 5 min;

Programmable oven with 4-ramp temperature control;

Temperature programming rate: 0.1~50°C/min

- **Injector system:**

Operating temperature range: ambient temperature to 420°C

- **Thermal conductivity detector-TCD:**

Maximum temperature: 420°C

Sensitivity: $\geq 12000 \text{mv} \cdot \text{mL/mg}$ (for butane)

Linear range: 10^5

Current range: 50 to 400mA

- **Filament protection:**

If He or H₂ carrier gas flow in the detector cell is off for 4 minutes, filament power automatically shuts off.

- **Flame ionization detector-FID:**

Maximum temperature: 420°C

Minimum detectivity: $\leq 1.3 \times 10^{-12} \text{g/s}$ (n-C₁₆)

Linear range: 10^7

Flameout hint: monitoring the status of GC continuously, after being turned on.

- **Electron capture detector-ECD:**

Maximum temperature: 420°C

Minimum detectivity: $\leq 0.1 \text{pg/mL}$ (γ -666)

Linear range: 10^4

Emission source: $11 \text{mC}^{63}\text{Ni}$

- **Flame photometric detector-FPD:**

Maximum temperature: 420°C

Minimum detectivity: [P] $\leq 1 \times 10^{-12}$ g/s (tributyl phosphate), [S] $\leq 1 \times 10^{-10}$ g/s (p-methylsulfurphosphorous)

Linear range: [P]: 10^5 [S]: 10^3

Two air-hydrogen flames: For large volume injection or trace sample injection analyses;

Single air-hydrogen flame: sulfur sensitivity can be increased;

Direct output: for phosphorus or sulfur analyses;

Square-root output: for sulfur analyses;

Exposed-light protection: when exposed-light current $\geq 12 \mu\text{A}$, high voltage will be cut off automatically.

- **Nitrogen-phosphorus detector-TSD:**