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YK-GC8971D Gas chromatograph

The E•Prod GC-8971 Networked Gas Chromatograph, part of YUKE's scientific instrument series, is a newly launched, fully digital and controlled gas chromatograph. The instrument incorporates advanced technologies from similar foreign products and utilizes leading domestic manufacturing technologies and processes to ensure reliability and extended uptime. It not only maximizes uptime and reduces maintenance, but also features a simpler and more rational structure and a more aesthetically pleasing design. The intuitive keyboard operation and user-friendly control software make it easy to learn and operate. The GC-8971 series networked gas chromatography system can be equipped with an advanced Electronic Pneumatic Control (EPC) system, providing industry users with leading-edge quality and reliable results. This instrument features unique network remote transmission and control capabilities, enabling unattended operation, distributed monitoring, and centralized control. Data analysis results can be integrated into a DCS system for statistical analysis, monitoring, and control of chromatographic component content, thereby improving the automation of production processes.

The GC-8971 gas chromatograph is widely used in various analytical fields, including petrochemicals, fine chemicals, biomedicine, environmental protection, food hygiene, high-purity gases, power generation, brewing, scientific research, and education.

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1. Instrument Technical Specifications:

1) The GC-8971D series gas chromatograph features an 8.0-inch LCD capacitive touch screen display, supporting both Chinese and English languages.
2) Manual and fully electronic pneumatic control (EPC) options are available, along with networked communication (using an Ethernet interface IEEE802.3) and full control operation via computer connection.
3) Electronic Pneumatic Control (EPC) System:
EPC control accuracy is 0.01 mL/min or 0.01 Kpa, ensuring better retention time reproducibility and more consistent and reliable results.
EPC operating modes: Constant flow, constant pressure, split mode.
Programmed pressure control: 4 stages
EPC working gases: N2, H2, Air, He, Ar
EPC control range: Pressure 0–100 psi, Flow range: 0–1000 mL/min (He, H2), default setting is He;
0–200 mL/min (N2, Ar), default setting is N2
Carrier gas: 0–100 mL/min
Reference gas: 0–150 mL/min
EPC control accuracy: Pressure 0.01 Kpa; Flow 0.01 sccm
4) Supports high-speed heating, with a maximum rate of 80℃/min, suitable for rapid analysis.
5) Temperature can reach 450℃, suitable for the analysis of high-boiling point samples.
6) Supports dual column ovens and dual rear door modes.
7) Column oven temperature increment is 1℃, with an accuracy of ±0.01℃, equivalent to high-end imported products of the same type.
8) 6 external event inputs, 2 auxiliary control outputs.
9) Diverse injection systems: Packed column injection, capillary split/splitless injection, valve injection, automatic liquid injection, fully automatic headspace injection, pyrolysis injection, thermal desorption injection, purge and trap injection are available.
10) Can be configured with a perfect center-cutting and valve switching system to help users complete complex multi-dimensional chromatographic analysis tasks. The Plus model is a multi-purpose gas chromatograph specifically designed for multi-dimensional and online analysis applications. 11) A wide variety of detector types are available; the Plus model can accommodate up to three detectors (the B model can accommodate two detectors simultaneously): TCD, HTCD, uTCD, FID, FPD, ECD, NPD, ZD, PDHID, PID, AID.
12) The program supports a multi-channel sample selection MPV system, featuring automatic valve number identification, automatic cascading judgment, automatic reset, valve position selection, and valve position analysis memory function, supporting up to 32 sample channels.
13) Unique network remote transmission and control functions allow for unattended analysis, distributed monitoring, and centralized control.
14) Data can be accessed by the DCS system via the MODBUS protocol, enabling statistical analysis and monitoring of chromatographic component content, improving the automation level of production process control.
15) Temperature control specifications:
Number of temperature control channels: 8 channels
Column oven temperature specifications:

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Column oven temperature range: Room temperature +4℃～450℃ (increment 1℃)
Column oven temperature control accuracy: Better than ±0.01℃
Column oven programmed temperature ramping: 23-step programmed ramping
Ramping rate setting: 0.1～39℃/min (standard type); 0.1～80℃/min (high-speed type)
Isothermal time for each step: 0～999min (increment 0.1min)
Programmed cooling: Cooling from 260℃ to 50℃ takes only about 5 minutes.
Injector, detector, and thermal conductivity cell temperature specifications:
Temperature range: Room temperature +4℃～450℃ (increment 1℃)
Temperature control accuracy: Better than ±0.01℃

2. Detector Technical Specifications

Hydrogen Flame Ionization Detector (FID)
Suitable for the analysis of volatile organic compound samples; high sensitivity;
Sealed main body design, fully incorporating foreign manufacturing and design technologies.

- Detection Limit: ≤3×10^{-12} g/s (n-hexadecane);
- Baseline Noise: ≤3×10^{-14} A
- Baseline Drift: ≤6×10^{-12} A/30min
- Linear Range: ≥10

3.Configuration Scheme:

Equipped with an electronic pneumatic control (EPC) system; the electronic flow controller (EFC) and electronic pressure controller (EPC) enable digital control, which can significantly improve qualitative and quantitative results.

1. Gas Chromatograph Main Unit (Full EPC), GC-8971D

- 1. 8.0-inch touch screen display, quick and simple keyboard operation; English display;
- 2. 8-channel temperature control supporting dual column ovens, room temperature 4℃～450℃, increment: 1℃, accuracy: ±0.01℃
- 3. Programmed temperature ramp steps: 23 steps, programmed temperature ramp rate: 0.1～39℃/min (standard type);
- 4. External events: 6 channels, auxiliary control: 2 channels
- 5. Computer reverse control operation, network digital communication; IEEE802.3 Ethernet interface
- 6. Optional workstation software with 10/100M adaptive network interface, capable of simultaneously processing data from multiple chromatographs
- 7. 16-channel electronic pressure and flow measurement and display module
- 8. Configured with electronic gas path control EPC system; Electronic flow controller (EFC) and electronic pressure controller (EPC) achieve digital control, which can greatly improve qualitative and quantitative results. Range: 0-0.6MPa, 0-100mL/min or 0-500 mL/min; control accuracy: 0.01 mL/min or 0.01 Kpa

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- 9. ▲ Parts GS45 and GS46 use all 1/16in imported stainless steel tubing and stainless steel connectors; the injection port and detector vaporization chamber are specially treated to reduce dead volume and minimize sample adsorption on the tube wall; with electronic flow monitoring, economical, practical, intuitive and convenient operation.

2. Flame Ionization Detector (FID): GS1501A, detection limit ≤3×10-12g/s (n-hexadecane/isooctane); automatic ignition via software program
3. Split/Splitless Injection Port: GS171A, advanced electronic flow controller (EFC) and electronic pressure controller (EPC) achieve digital control, which can greatly improve qualitative and quantitative results. Measuring range: 0-0.6MPa, 0-100mL/min or 0-500 mL/min; Control accuracy: 0.01 mL/min or 0.01 Kpa
4. Automatic liquid sampler: AS-8019, 19 positions, straight tower; (optional)
5. Capillary chromatography column: 100*0.25*0.2 (economical imported)
6. High-purity hydrogen generator: EPH-300 type, 0-300ml/min; purity ≥99.999%
7. Low-noise air pump: EPA-2000 type, maximum flow rate 2000ml/min, clean and dry air
8. Chromatography workstation: SP4000, including reverse control workstation

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