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HPLC-6400(DAD)

1. Product Profile

The HPLC-6400 HPLC system uses a new industrial design language, with a more high-end, stylish, stronger sense of integration, and the flexibility of modular design.

Intelligent double ternary infusion pump system has the greatest flexibility in solvent selection and automation.

Full network communication, can form a local area network, realize man-machine separation, communication rate is better than other communication modes.

A 7-inch HD touch screen to monitor the working state of the whole system in real time.

2. Product characteristics

1) The HPLC system uses a modular design to provide you with a flexible, scalable solution, with multiple detectors optional, including but not limited to DAD, ELSD, RID, FLD, etc., to ensure that your analysis goes smoothly.
2) The small cam closed-loop drive system is designed, and the patented no-gap universal plunger rod design, plus the electronic suppression pulsation technology, is used to more effectively reduce the pulsation of infusion and improve the flow accuracy.
3) Built-in spring power integral check valve (four-yuan low-pressure infusion pump standard), completely avoid static electricity, mobile phase viscosity and other interference to the work of the check valve.
4) Built-in 5-channel online degassing machine.
5) Fourth generation micro high-performance mixer, low delay, micro-delay volume (500 uL)
6) The automatic sampler adopts the 3-axis linkage working mode, which is faster and more accurate.
7) Wash the needle with the injection wall and clean the inner and outer walls of the needle.
8) Automatic detection function of sample plate and sample bottle, and online reminder function.

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9) The autosampler has optional sample disk cooling function: minimum 4℃.
10) The digital filtering algorithm is used to effectively reduce the electrical noise interference and make the instrument have excellent detection sensitivity and stability.
11) The application of real-time leakage detection function, high pressure and low pressure alarm, automatic shutdown, ultra-high temperature, low temperature, humidity alarm, super temperature power protection and other technologies, to provide safety guarantee for users to achieve unattended.
12) The operation mode of full reverse control, the operation parameters and status of the instrument can be controlled and monitored by software, which greatly improves the convenience of operation and work efficiency, simple and easy to use.
13) PH range: 1-14.
14) The central controller can directly control or monitor the operating status of all modules via the 7-inch Full HD LCD touch screen (optional).
15) The chromatography workstation of the database version has the functions of permission management, electronic signature, etc., and is fully compatible with GLP specifications, the use and replacement information of accessories is recorded in real time, and has the function of consumables replacement reminder.
16) More advanced flow path design, reduce cross-pollution, to achieve high-precision sample injection;
17) Advanced Parker paste temperature control method, to achieve the refrigeration column temperature requirements
18) The chromatographic workstation has full reverse control of the whole modules including automatic sampler, infusion pump, column temperature box and detector, ensuring the traceability of chromatographic conditions and parameters and the full automation of analysis operation, which can realize the unattended operation sequence samples without stop for a long time, and comprehensively improve the efficiency of analysis and detection.
19) It is equipped with real-time liquid leakage and various parameters over-threshold alarm detection function to provide safety guarantee for users to realize unattended.
20) The new full-network communication mode greatly improves the communication rate of the chromatographic workstation and the whole machine, and ensures the accuracy of data collection and the reliability of long-term operation.

3. Technical parameter

1. Four-yuan low-pressure infusion pump (including the mixer)

1) Adopt gapless universal plunger plug rod installation method to greatly extend the service life of plunger rod and sealing ring; double plunger reciprocating series pump design greatly reduces the failure rate of pump check valve (50%) and effectively saves the maintenance cost;
2) Built-in spring power integral check valve, completely avoid static electricity, viscosity and other interference to the work of the check valve;
3) The small cam closed-loop drive system is adopted to effectively reduce the infusion pulsation and improve the flow accuracy; Double pump head design reduces the pressure pulsation of the pump and increases the infusion stability;
4) All pump head materials are made of high quality 316L stainless steel with high strength and corrosion resistance; the pump head is external for easy maintenance.
5) The sealing ring adopts the new yellow polymer material with corrosion resistance and good sealing ability, which extends the service life of the sealing ring and the plunger rod, and the plunger rod is automatically indented, convenient to replace the sealing ring;
6) Built-in 5-channel online degassing machine, using Systec AF ® degassing circuit, degassing performance is better, vacuum pump design service life of> 6 years (100 rpm 12 hours / day 365 days / year), with independent working indicator light;

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7) Built-in high-speed gradient proportional valve, shorter response time, smaller delay volume.
8) Automatic programmable plunger rod cleaning system, users can set up different cleaning schemes, to achieve automatic online cleaning;
9) Overall one-way valve, simple structure, good sealing, long life (design service life> 5 years 1 mL/min methanol solution 12 hours / day 365 days / year);
10) The high-performance MCU control closed-loop drive system has smooth operation and low noise; the optimized cam curve design and electronic pulse suppression technology simultaneously control the pressure pulse, ensuring the lower pressure fluctuation and low baseline noise; the embedded chip control technology can realize the joint control of single interface to multiple modules;
11) Ultra-high pressure, low pressure and leakage alarm function, real-time display of operating parameters and status, abnormal time can automatically stop to ensure the safety of unattended operation;
12) Solvent number: 4;
13) Set flow range 0.001~5.000mL/min with increment of 0.001 mL / min;
14) Flow accuracy: 0.2%(1.000mL/min specific conditions);
15) Flow precision: 0.06%(1.000mL/min Specific conditions);
16) Pressure range: 0~80MPa; the upper and lower limits can be set to automatically alarm and stop the pump;
17) Pressure pulsation: ± 0.1 Mpa;
18) Gradient mixing accuracy: ± 0.5%;
19) Gradient mixing precision: 0.05%;
20) Mixer delay volume: 500 uL;
21) Maximum withstand pressure of the mixer: 80 Mpa;
22) The gradient elution setting range is 0.01~100.00%;
23) Gradient setting minimum step 0.01%;
24) The standard injection sequence can realize automatic shutdown at the end of operation (turn off the power supply);
25) With consumables use record function, historical data query function;
26) Communication interface: LAN / RS232 / RS485 / USB;
27) Power supply: 100-240VAC 50 / 60Hz maximum power: 130W;
28) Dimensions: high H185 * wide W370 * deep D500 mm;
29) Weight is about: 15kg;

4. Automatic sampler (refrigeration board)

1) Adopt the 3-axis linkage working mode, and the running speed is faster and more accurate.
2) Drawer type double sample plate design, placing samples more convenient;
3) Standard sample disk capacity: 180 bits (L disk 162-bit 1.5 mL sample bottle, R disk 16-bit 1.5 mL sample bottle);
4) Optional sample disk capacity: L disk 396-well plates or 88-bit 4 mL sample bottles or 32-bit 10 mL sample bottles, R disk can choose 12-bit 4 mL sample bottles;
5) Sample disk refrigeration: minimum 4℃ (can be heated to 40 degrees);
6) External high-precision syringe, easy to maintain;
7) Injection speed: the fastest speed is 5s;
8) Injection volume: 0.0-100.0uL, minimum increment of 0.1 uL;
9) Minimum injection volume: 0.1 uL;
10) Quantitative ring volume: 100 uL (support for customization of other volume);
11) Injection mode: full quantitative ring injection, partial quantitative ring injection, non-destructive injection mode can be set;

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12) Sample residue: 0.002% (caffeine), under UV conditions;
13) Injection repeatability: $RSD_6$0.25% (10ul for injection, $1x10^{-4}$G/mL Naphthalene / methanol solution);
14) Needle washing method: full automatic injection needle wall liquid cleaning and needle wall gas purge;
15) There are independent 2-bit needle washing grooves;
16) Automatic bottle pressing mechanism to prevent the lifting of the sample bottle;
17) Set the injection needle cleaning time before or after injection;
18) Online degassing function (standard with four-yuan low pressure pump, optional at other times);
19) The washing volume can be customized by the software, and the washing speed can be modified by the software;
20) The injection speed can be modified using the software;
21) Have air interval, bottle pressure function;
22) Safety measures: liquid leakage alarm, high and low voltage power supply isolation, sample bottle detection, sample disk detection;
23) Expansion function: maximum sample input of 5 mL for optional or later upgrade;
24) The standard injection sequence can realize automatically shutdown at the end of operation (turn off the power supply);
25) It has the consumables use record function and the historical data query function
26) Communication interface: LAN / RS232 / RS485 / USB;
27) Power supply: 100-240VAC 50 / 60Hz maximum power: 150W;
28) Dimensions: high H290 * width W370 * deep D500 mm;
29) Weight is about: 22kg;

5. Column temperature box (refrigeration board)

1) Through the chromatography workstation directly reverse control the column temperature box, working status real-time display;
2) Temperature control mode: ceramic direct heating mode;
3) Column capacity: 3250mm standard column columns are installed at the same time;
4) Range of temperature control (℃): -4℃ ~ 85℃;
5) Upper limit temperature protection (℃): 95℃;
6) Temperature control accuracy (℃): ± 0.1;
7) Temperature stability (℃): ± 0.1;
8) Safety measures: thermal protection of automatic power outage, automatic shutdown;
9) Communication interface: LAN / RS232 / RS485 / USB;
10) External event interface: Yes;
11) Power supply: 100-240VAC 50 / 60Hz maximum power: 200W;
12) Dimensions: high H145 * wide W370 * deep D500 mm
13) Weight is about: 5kg;

6, Diode array detector

1) Length range: 200~800 nm;
2) Light source: deuterium lamp and tungsten lamp;
3) 512 diode arrays (4,096 diode arrays through a complex algorithm);
4) Wavelength accuracy: ± 1 nm;
5) Wavelength precision: ± 0.5 nm;
6) Noise: ± 510-6 AU (air pool, 254nm, TC 2s, 10 Hz);
7) Drift: 110.4 AU / Hr (air cell, 254nm);
8) Digital output: 1 V/AU;

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9) Number of analog output channels: 4;
10) Time parameter: 10 ~ 10,000 ms;
11) Maximum acquisition frequency: 100Hz;
12) Communication interface: LAN / RS232 / USB;
13) Solvent contact materials: quartz, SUS 316L, PEEK
14) Digital output, analog output, START signal;
15) Power supply: 100-240V 50 / 60Hz maximum power 260W;
16) Dimensions: high H145 * width W370 * deep D500 mm;
17) Weight is about: 11.8kg;
18) Weight is about: 9.5kg;

7. Solvent tray

8-bit independent design with 61000 mL solvent bottles and 2500 mL solvent bottles placed at the same time;

8. Central controller (optional)

19) Integrated design of solvent organizer, which can place 61000 mL solvent bottles and 2500 mL solvent bottles at the same time;
20) Instrument parameters and methods can be customized and saved;
21) The map can be displayed in real time;
22) Single sample injection and sequence sample injection operation can be carried out;
23) 6 independent sensors monitor the mobile phase liquid level, real-time liquid phase low liquid level alarm function;

9.The chromatographic workstation software

1) The interface of this software is a standard 32Windows program interface, which can conduct instrument control, data collection, data processing and report generation, and data data can be converted into Word or Excel format.
2) 3.1 It integrates instrument unit control, data acquisition and processing, and is fully compatible with GLP specification
3) 3.2 Flexible peak identification and processing capability: the peaks can be identified and processed by setting peak processing parameters and time procedures
4) 3.3 Powerful spectrogram operation function: multiple spectrographs can be opened under the same page to intuitively analyze and compare the differences between each spectrograph
5) 3.4 A variety of quantitative calculation methods: return one method, correction return one method, internal standard method, external standard method and other quantitative methods

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