OSIS Quality & Reliability

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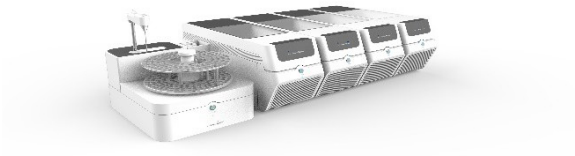
ORFIA-605 Flow Injection Analyzer



The ORFIA-605 flow injection analyzer is a fully automated multi-channel analyzer with on-line sample pretreatment function. The instrument consists a multi-parameter analysis channel, an autosampler, and a software workstation. Each analysis channel has an independent peristaltic pump, chemical analysis template, photodetector, system control, and signal acquisition circuitry. The channel is equipped with on-line heating, on-line distillation, on-line UV digestion and on-line extraction devices required by the method, and the chemical reaction process is controlled by software. Each channel is completely independent, and there is no need to change hardware when changing the analysis method. The software workstation supports maximum 8-channel simultaneous detection.

Based on the theory of flow injection analysis (FIA), in a closed pipeline, the sample solution is directly injected into the reagent carrier in the form of a “sample plug”. The reagent and the sample are mixed and reacted in the pipeline, and can be tested before the completion of reaction. Thus, it gets rid of the traditional concept that the analysis must be conducted under steady state conditions. Chemical analysis can be carried out under unbalanced dynamic conditions, which greatly improves the analysis speed.

Features:

1. Fully automated multi-channel analysis, software workstation support.
2. Up to 8 channels simultaneous detection and change of analysis methods.
3. Simple and fast, entire analysis process completes automatically.
4. No manual intervention is required.
5. Analysis channel dimensions: 210 mm (L) x 640 mm (W) x 310 mm (H)
6. Automatic sampler dimensions: 360 mm (L) x 460 mm (W) x 350 mm (H).
7. Diluter dimensions: 180 mm (L) x 220 mm (W) x 220 mm (H).
8. Power requirements: AC 220 V, 50-60 Hz.
9. Peristaltic pump: 12-channel peristaltic pump with programmable speed at 5-100 rpm.
10. Autosampler: large-capacity and coordinated, with more than 160 sample positions and anti-collision device.
11. Photodetector: wavelength range of 340-1050 nm, high-sensitivity blue-enhanced photodetector. high-precision A/D converter, detection dynamic range not less than 3 orders of magnitude.
12. Diluter: automatic preparation of standard samples for calibration, automatic online dilution of over-standard samples, dilution factor of 1.5-10000.
13. Reagent consumption from 10-100 µg according to different methods
14. Analysis frequency: up to 120 samples/hour according to different methods.
15. Temperature control range: room temperature to 180 °C, over temperature protection.
16. Working conditions: indoor use only, ambient temperature 10-35 °C, relative humidity 25%-85%, no condensation.

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FIA-605 autosampler

1. Large-capacity polar coordinate autosampler with 162 sample tube positions, needle washing position and two large-capacity cleaning liquid levels, meet the needs of large numbers of sample analysis.
2. Code disc positioning, high positioning accuracy, no system cumulative error.
3. Precisely machined sampling syringe, anti-collision device, immediate stop when puncturing human hand or other obstacles to avoid injury and waste of reagent.
4. Dual-channel make-up pump, program-controlled automatically replenish cleaning solution, no need to manually replenish the cleaning solution.

High precision peristaltic pump

1. Each analysis channel has an independent 12-channel peristaltic pump with settable pump speed at 5-100 rpm.
2. Integral gland design, adjustable elastic device to ensure pressure of each pump tube and improve reliability. Special coating treated gland surface is chemical corrosion-resistant and reduces fatigue of pump tubes.
3. Multiple clamps of each pump tube for frequent change of the clamp position, prolong lifetime of pump tube.

Online sample preparation device:

1. Have on-line heating, distillation, UV digestion, extraction and reduction functions. Fast and accurately process sample with low sample and reagent consumption.
2. On-line distillation-condensation unit adopts quartz gas-liquid separator, with fast distillation and high efficiency; no need for dialysis membrane, no trouble of membrane change (patent applied. Patent No.: ZL2018 2 0335841.1).
3. Built-in 254 nm UV lamp digestor, program-controlled light on and off, effectively extends lifetime of UV lamp.
4. Programmable setting and precise control of heating temperature ensure the consistency of each reaction process. Over-temperature protection device ensures safety and reliability.
5. Double-beam optical system with excellent stability and high detection accuracy.
6. LED light source for certain wavelengths, ultra-long lifetime, low noise, low drift and good stability.
7. High-sensitivity blue-enhanced photodetector with wavelength range of 340-1050 nm.
8. High-precision A/D converter, detection dynamic range not less than 3 orders of magnitude.
9. Advanced online degassing device removes bubbles online, avoiding interference.
10. Liquid leakage detection device automatically alarms and stop after detecting liquid leakage, avoids instrument damage and reduces reagent waste.
11. Specialized flow injection analysis software workstation, English operating system, user-friendly interface design, easy to learn and operate, convenient software-preset method analysis conditions.
12. Proportional diluter automatically prepares standard samples for calibration and online dilute over- standard samples with fast dilution and high accuracy. Automatically dilute samples with excessive concentration according to preset procedure, clean pipelines to avoid contaminating next sample.
13. Reliable and multiple safety protection devices.
14. All analytical methods conform to national standards and EPA/ISO methods.

Patented technology: online distillation unit and quartz gas-liquid separator

1. Fast distillation, high efficiency, short detection period, reagent-saving.
2. No need to change film, maintenance-free, easy to use.

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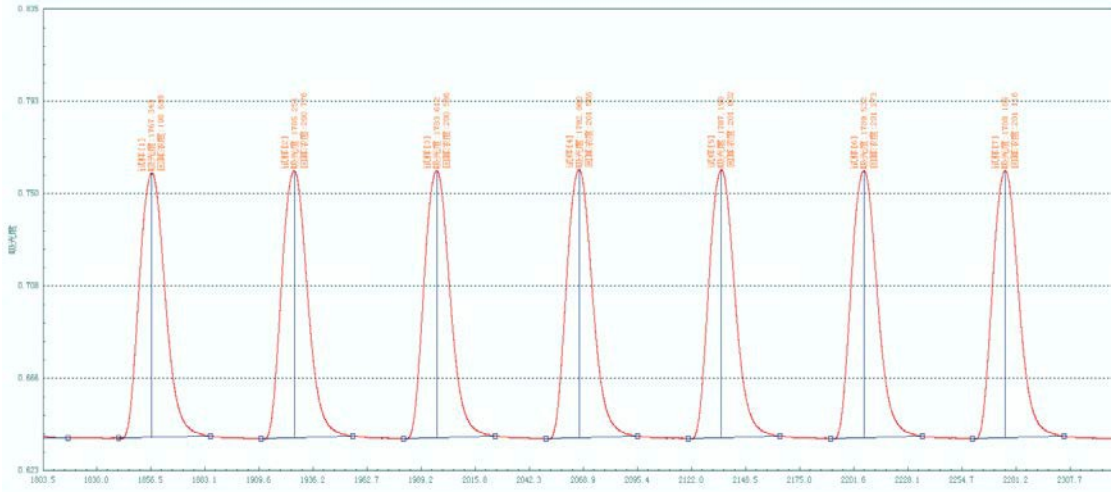
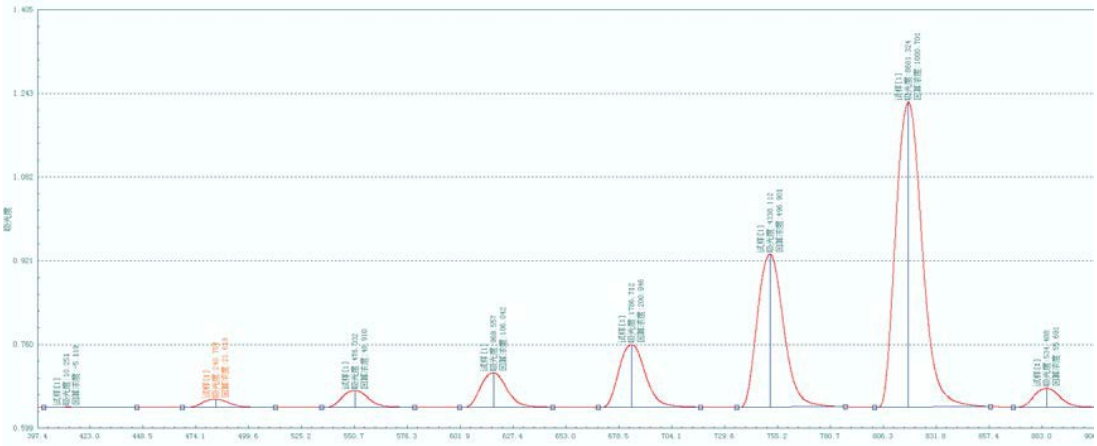
Patented technology: double beam optical system

1. Good stability and high detection accuracy.
2. High-efficiency online bubble removing device to effectively remove air bubbles and avoid abnormal detection caused by bubbles.
3. Automatic sampler code disc positioning, high positioning accuracy.
4. Automatic anti-collision device, immediate stop of detection when the needle hits a foreign object to prevent personal injury and needle damage.
5. Optimized analysis method, shortened detection cycle, reagent-saving.

Experimental spectrum





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