

Crystallux 4000M

Gas Chromatograph

The Crystallux-4000M gas chromatograph is fully automated, from the input of the sample to the processing of the chromatographic information, including the functions of automatic control of the temperature of thermostats, flow rates and pressure of the carrier gas (EUG system), auxiliary gases, automatic ignition of detectors, control of flame burning during operation, measuring detector signals using a 24-bit ADC.

A gas chromatograph includes more than 30 basic models, each of which can be adapted to a specific consumer task. The chromatograph consists of an analytical unit, a control station, control and processing of chromatographic information, which is used as a personal computer, and the program "NetChrom", running in Windows. In addition, additional programs are supplied: calculation of the calorific value of natural gas, diagnostics of transformer oil, calculation of Shekhar control charts, identification of multicomponent mixtures (for example, vegetable oil, cognac, hydrocarbon fuel, etc.), data output to an external monitor.

One computer can work in real time with several analytical units (up to eight), and in addition, control the operation and process signals from the Crystal 2000 and Crystallux 4000 gas chromatographs, and process signals from other brands of chromatographs through ADCs. Information is exchanged between a computer, analytical units and a chromatograph via standard interfaces such as RS-232C, USB. It is possible to control the chromatograph from a distance of up to 3000 m. To set modes and process information without using a computer, there is a remote control panel for the chromatograph based on a microcomputer with OC Windows.

The analytical unit has up to three independent channels for the separation and processing of information and consists of a column thermostat, a removable analytical module, and an electronic gas flow control unit (ECG). By individual order, four detectors can be installed. To start the analysis, a "Start" button is provided in each channel, which is duplicated by a soft button.

The chromatograph is available in two models: with a column thermostat volume of 7 l (version 1) or 14 l (version 2). Thermostats allow you to place up to four nozzle (metal or glass) or three capillary columns. The thermostat is controlled using a new high-precision temperature control algorithm, which improves the accuracy of temperature maintenance.



The top panel of the thermostat (analytical module) can be fixed in the working or inclined position (at an angle of 35° – version 1 and 120° – version 2).

The rotation of the panel provides ease of installation and replacement of columns, which is equivalent to an increase in the volume of the thermostat in versions 1 and 2 by 3 l and 5 l, respectively. Thus, the effective volume of thermostats is 10 and 19 l for versions 1 and 2, respectively.

On the top panel there is a cover designed to access the gas circuit for its switching.

Depending on the chromatograph model, the EUPG unit controls from two to seven flows, including hydrogen and air, using electronic gas flow and pressure regulators, and a programming mode for the flow and pressure of the carrier gas is provided. To control the flow, a new reliable solenoid valve is used in the gas flow regulator.

Gas chromatographs of the Crystallux series are equipped with an electronic pressure regulator, by means of which the flow rate of the carrier gas through the capillary column is set. Sample discharge from the capillary injector (split, splitless modes) is carried out using an electronic gas flow regulator and trap, which also serves as a pressure buffer for the evaporated sample. The buffer is automatically cut off when the device is turned off using the reset valve. It is possible to maintain the optimal gas mode of the capillary column by programming the carrier gas flow by pressure, linear velocity or mass flow. There is a gas saving mode and a chromatograph "sleep" mode.

The inlet gas pressure is stabilized by electronic pressure regulators. It is possible to use two carrier gases, as well as switch between them.

