



KONIK HPLC 600

Absolutely Innovative...

Absolute KONIK

Designed for:

μ HPLC

HPLC-MS

ION CHROMATOGRAPHY

GPC

and above all for Multidimensional

HPLC+GC & HPLC+GC-MS



The universe of molecules... The world of KONIK

Manufacturing HPLC's since 1985

Microbore HPLC analysis pioneers

Innovative in every way...

After more than 25 years many HPLC,s do not offer yet this performance, nor options...

Konik introduced in 1985:

- Low pressure Gradient Formation
- Patented Isokinetic Flow Delivery
- Reproducible gradient formation
- Solvent degassing (He)
- Column oven
- Column switching
- Detector switching



NEW KONIK 600 HPLC

KONIK has been designing and continuously improving its HPLC programme since 1985. The specifications and performance of the new KONIK 600 are second to none.

In fact the KONIK 600 HPLC has been purposely designed for fast/high pressure micro HPLC while being compatible with flows and pressures of standard 3, 5, and 10 micron columns. Moreover is the only HPLC ever designed with full Multidimensional compatibility for HPLC+GC and HPLC+HPLC combinations.

We have improved the flow control, gradient formation and reproducibility, temperature control and programming of the column oven, degassing, valves and external events

control and operation. The KONIK 600 HPLC System has been designed to offer many unique options such as programmable reversed flow features, column and detector switching to enhance productivity, up to 6 solvent selection, full range of detectors including three types of UV-VIS Detectors and PDA, etc. The state-of-the-art electronics, based on FPGA's and micro embedded PC's, that KONIK developed for its KONIK Q12 Mass Spectrometer, and KONIK 5000 GC have now been also implemented in its range of HPLC,s allowing total diagnostics and remote control of the systems via internet and simple TCP/IP protocols.

KONIK HPLC's evolution since 1985



1985 KONIK HPLC 500A



1992 KONIK HPLC 500B



2006 KONIK HPLC 560 Tower (Low Cost)

Only HPLC ever designed with full Multidimensional compatibility for HPLC+GC

The KONIK 600 has been designed for all conventional and μ HPLC applications including Multivalve-Multicolumns Systems, as well as Fast and Multidimensional HPLC+HPLC (heart cut) and for multidimensional HPLC+GC (KONIK patent) and HPLC+HPLC+GC+GC. All these options can be fitted into the KONIK 600 at any time, providing full insurance for the fast evolving future as more and more applications and methods come into place.

Model KONIK 560 is a modular low cost HPLC system on a tower design currently limited to isocratic and ternary (low pressure mixing) gradient versions.



KONIK HPLC 600:

The result of more than
25 years of experience in
designing and manufacturing
liquid chromatographs

KONIK HPLC

Pump specifications

The **KONIK 560 Pump** has been designed to meet any analytical application in liquid chromatography.

Wide flow ranges: from 0.01 to 10 ml/min in 0.01 steps, including semi-preparative applications.

Easy-handling intuitive operation through a simple logical keypad and 2 LED displays allowing you to readily enter operating parameters and to properly adjust your method. It can be also controlled by the KONIKROM® HPLC software.

Very low residual pulsation (virtual pulse-free) and exceptional flow rate and precision due to the optimized dual serial piston pump design.

Reliable, accurate and very high-reproducible low-pressure gradient mixing trough an innovative concept of electronic control and a high-performance processor unit.
High retention time reproducibility from an accurate flow control and optimized mixing.

The **KONIK 560 Pump offers a wide range of application scope:**

- Isocratic, gradient and preparative HPLC
- μ HPLC
- GPC
- Ion chromatography
- Pump tasks outside the range of HPLC

Delivery system

Dual serial piston pump

Isocratic Pump Heads

10, 50 and 100 ml/min

Gradient Pump Heads

10, 50 ml/min

Maximum Delivery Pressure

10 ml/min pump head: 40 MPa (5800 psi)

50 ml/min pump head: 28 MPa

100 ml/min pump head: 15 MPa

Flow Range

10 ml/min pump head: 0.01 – 10 ml/min in 0.01 steps

50 ml/min pump head: 0.01 – 50 ml/min in 0.01 steps

100 ml/min pump head: 0.1 – 100 ml/min in 0.1 steps

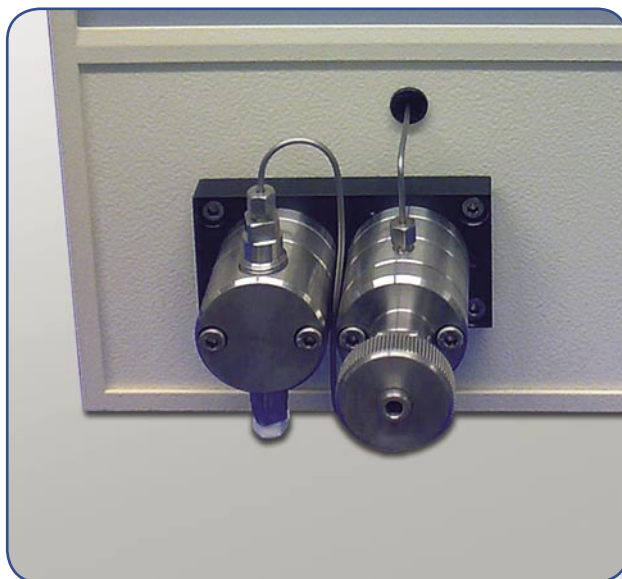
KONIK HPLC 560 Pump for unmatched reproducibility on gradient formation

The gradient forming has been optimized and consequently the excellence on the second to none gradient reproducibility of any solvent mix has been achieved. This is a technical specification demanded by the Multidimensional HPLC+GC Patented Coupling.

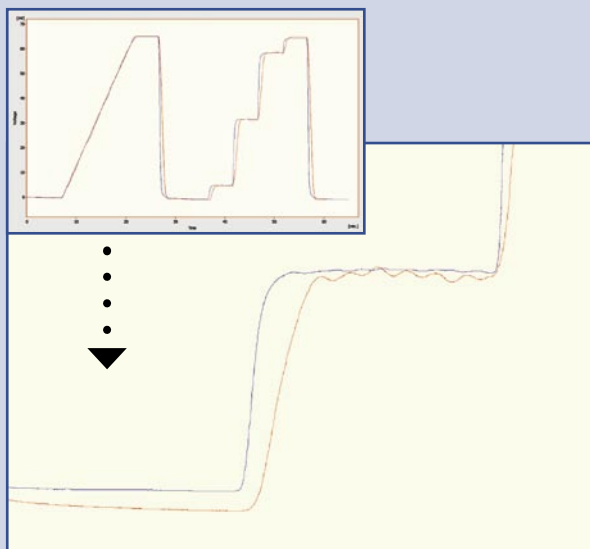
The reason being that the feature of target analytes obtained by the HPLC to be cut to the GC are dependent on a time based function that operates a 6 way valve. Lack of gradient reproducibility causes retention time drifts creating nuisance on the method adjustment and handicapping reproducibility of this powerful technique.

The KONIK HPLC 560 and HPLC 600 have been specifically developed for this happy marriage HPLC+GC, which is potentially the most powerful analytical technique at the time being.

3 and 6 Solvent selection / gradient formation



Unmatched Gradient Reproducibility



“The gradient forming has been optimized to achieve the highest reproducibility of any solvent mix. The KONIK 560 Pump is the suitable pump for the KONIK patented coupling HPLC+GC”

KONIK HPLC Universal Column Oven

KONIK HPLC 560 Column Oven has been specially designed for the use in chemical and biological routine analysis, including research laboratories. Its areas of application range from analytical to preparative HPLC, compatible with any HPLC brand and model in the market.

A stable column temperature not only improves the reproducibility, but rather considerably improves the resolution of certain HPLC methods as well.

The reliable control of the temperature, which covers a range of 5-85°C has been realized with the use of a microprocessor controlled Peltier element. The measurement of the temperature is carried out with high accuracy using Double Reference Sensor Technology.

The powerful interior fan provides for 2-way air circulation and a perfectly oven distribution of the thermostatted air in the column compartment, enabling quick ramping of the temperature.

The remote keypad enables access to all the thermostat's functions and displays set up and actual temperature in increments of 0.1°C. The KONIK HPLC 560 Column Oven can hold up to 4 liquid chromatography columns with a maximum length of 350 mm each. The maximum inner diameter of the HPLC columns is 20 mm.

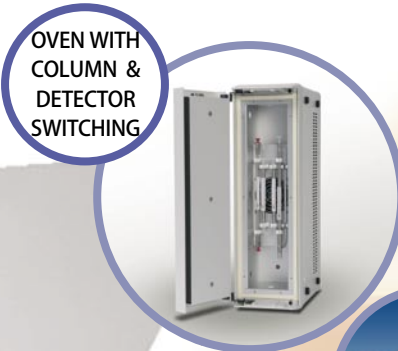
In addition to the standard temperature adjustment, it is possible to program temperature gradients with up to 99 steps to optimize an analysis.

The temperature can either be controlled with the supplied control panel or externally with a PC. Gradients can be conveniently programmed with our chromatography software KONIKROM®.

Built-in peripheral column oven



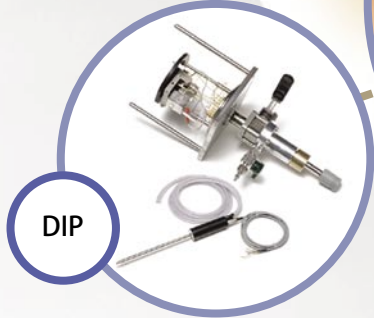
*Passion
for innovation*



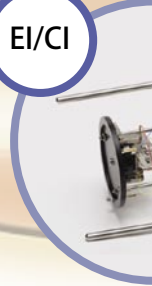
**TO BE
DISCLOSED
SOON**

**HPLC
MS**

K2 Q12



EI/CI



Unlimited Modular Expandability

ROBOKROM
HPLC

STATIC
HEAD
SPACE

PURGE
&
TRAP

HPLC
600

SPME

TOTAD

THERMAL
DESORPTION

HRGC
5000B

ROBOKROM
GC

K2 Q12
MULTIDIMENSIONAL
HPLC+GC

K2 Q12
MULTIDIMENSIONAL
HPLC+GC-MS

QUANTITATOR
GC

*Obsession
for perfection*



Designed to grow to:

A) Multidimensional HPLC+GC-MS to HPLC-MS



B) HPLC-MS

NEW RE-DESIGNED ESI/APCI LC/MS INTERFACE

Positive and negative ionisation modes as standard, Electrospray Ionisation and Atmospheric Pressure Chemical Ionisation as standard allows the analysis of the widest type of compounds. The interface is based in a patent pending adjustable geometry spray orientation (from orthogonal to on-axis) and keeps the capillary and ion optics cleaner. Optimum electrospray droplet formation and desolvation thanks to the x-y-axis capillary fine adjustment.

The exchange between GC/MS and LC/MS is accomplished in less than 15 minutes and the switch between ESI and APCI probes in less than 5 minutes without breaking the vacuum.

The interface includes full control of nebuliser gas, counter flow heated drying gas, sheath gas, heaters, cone voltages, needle voltage, etc. Ions are transferred to the quadrupole through an Hexapole based ion guide that ensures high mass transmission with improved sensitivity.

Operational flow rates comes from 2 µl/min to 2.0 ml/min in ESI mode and from 0.2 to 2 ml/min in APCI mode. Low picogram level samples can be easily analysed.

The analysis of high molecular weight compound as well as structure elucidation implementing the multicharged ion analysis within high ionization efficiency and collision induced dissociation are easily achieved.



KONIK HPLC 560 & 560 E UV-VIS Spectrophotometer Detectors

The KONIK UV-VIS 560 and 560 E Detectors are designed for HPLC routine laboratory work, are flexible and can be used for any analytical or preparative application.

They combine the attractive and functional Konik design with an effective photometric detection system. Besides their excellent measuring capabilities these UV-VIS detectors feature small dimensions, robustness and high flexibility. They guarantee optimal performance with high sensitivity and wavelength selectable at any time, which is very useful for method development.

Benefits:

The **KONIK UV-VIS 560 DETECTOR** is a fully programmable variable wavelength spectrophotometer detector with a working range of 190-600nm. This detector is equipped with a high standard deuterium discharge lamp.

For an extended wavelength range up to 800nm we are offering the **KONIK UV-VIS 560 E DETECTOR** that incorporates an additional tungsten lamp as a secondary light source. Both lamps are perfectly aligned for an optimal performance.

State of the art electronics and optics provide high sensitivity and ensure low noise and low drift performance.

A standard analytical flow cell is supplied with the units (volume 10µL, optical path 5mm, diameters of capillaries input 1/16" x 0.2mm, output 1/16" x 0.5mm). Different flow cells are optionally available to support a full range of applications, from microbore to preparative.

Easy access to the flow cell and lamp ensure quick maintenance and minimum downtime. Both detectors have convenient front panel controls allowing a quick and accurate adjustment of the wavelength as well as an easy programming. Baseline re-zero can be done manually by just pushing a button. Full control of the detectors through computer, using **KONIKROM PLUS SOFTWARE**.

Technical data:

Wavelength Range:

190-600 nm
or 190-800nm (560 E)

Light Source:

Deuterium discharge lamp. Optional Tungsten lamp (560 E)

Spectral Half-width: 6nm

Wavelength Accuracy: ± 1 nm

Wavelength Reproducibility: ± 0.5 nm

Noise (empty cell, 240nm, TC 1s): < 0.5x10⁻⁵ AU

Drift (empty cell, 240nm, 1h): < 1x10⁻⁵ AU/hv

Interface: RS-232



PDA 560 & UV-VIS 560 MW Detectors

The **KONIK 560 Photo Diode Array Detector** is a full-spectrum absorbance measurement detector with a wavelength range of 200 to 600 nm, which meet all main HPLC applications. Uses a Deuterium discharge lamp and has an internal built-in counter to monitor the lamp life-time; therefore to better plan your laboratory work. With an optional preparative flow cell allows accurate quantification in preparative and analytical applications. An easy replacement of the flow cell provides maximum flexibility.

The unit's design offers the following advantages:

- Generation of a 3D file that can be handled and displayed using Konikrom Plus Software. Requires the PDA data module (KNK-725-750)
- Acquisition during the run of up to eight wavelengths simultaneously, generating the corresponding 2D chromatograms.
- Once the run is finished any 2D chromatogram corresponding to the up to 256 wavelengths obtained in the scan range can be extracted from the 3D file.
- Full Absorption spectra can be obtained for each time.

The **KONIK UV-VIS560 MW Detector** is a Multiple Wavelength Spectrophotometer based on diode array technology. It is an efficient economical solution for simultaneous absorbance measurement at four wavelengths. It allows accurate quantification in flash, preparative and analytical applications. The new KONIK 560 MW Detector has improved noise specifications and is a robust realistic solution to the market demands.

The KONIK 560 Photo-Diode Array Detector design has been optimized to provide a realistic solution to the different market sector needs. The new PDA enables scientists to meet their analytical targets, reaching lower detection limits in the most meaningful wavelength range.

Technical Data:

Range UV: 200 – 600 nm

Typical Spectral half-width: 6nm

Accuracy of adjustment: ±1.0 nm

Wavelength Reproducibility: ±0.5 nm

Light source: deuterium discharge lamp



560 REFRACTIVE INDEX DETECTOR

The KONIK HPLC 560 Refractive Index Detector represents consistent advantages in comparison with their successful predecessors.

Crucial parameters such as drift, noise and flow control precision have been optimized to provide a better sensitivity and higher performance.

The KONIK 560 Refractive Index Detector has been equipped with a colour digital display to simplify the operation of the detector. The eluent connectors are placed on the detector's front for an easier access of the analyst.

RI detectors are used for detecting low or null UV-absorption samples such as sugars or polymers. The KONIK 560 RID, has been technically improved to shorten the time of stabilization. The start-up from eluent replacement for base-line stabilization is possible through the micro-processor control. The detector is fitted with external input and output terminals as well as RS232 communication ports, allowing advanced automation by linking the detector with different HPLC systems.

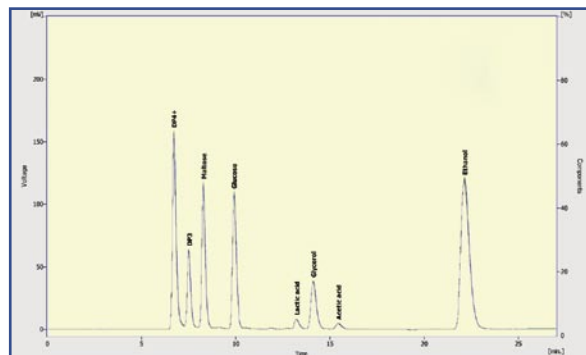


Figure 1. Chromatogram of Ion Exclusion HPLC for monitorization of fermentation Broth during Ethanol Production as a biofuel, using KONIK Refractive Index detector, and showing excellent performance.

Technical data:

Refractive index range: 1/4 – 512 μ RIU

Noise level: 2.5 nRIU (response 1.5sec)

Drift: 0.2 micro-RIU/h

Cell volume: 8 μ L

Usual flow rate: 0.2 to 3 mL/min

Maximum flow rate: 10 mL/min (solvent: pure water)

Adjusted temperature: OFF, 30-50°C (1°C increment), 77°C Temp. Fuse

Compound	Retention Time (min)	%RSD (Ret. time)	%RSD (areas)
DP4+	2.714	0.04	1.14
DP3	3.163	0.03	0.43
Maltose	3.551	0.04	0.38
D-(-)- glucose	3.988	0.03	0.22
L-(-)-Lactic acid	13.249	0.02	0.33
Glycerol	14.130	0.03	0.14
Acetic acid	15.454	0.02	0.76
Ethanol	22.161	0.02	0.13

Table 1. RSD parameters using KONIK 560 RID

560 FLUORESCENCE DETECTOR

KONIK 560 Fluorescence Detector is second to none in terms of sensitivity with a signal-to-noise ratio better than 350:1 for the Raman water peak. Covers a wide wavelength range both for excitation and emission from 220 to 700 nm (~ 900 nm with an optional PMT) with proven stability.

Versatile time-programming capabilities are provided for wavelength, response, gain, spectral scan... permitting highly selective detection of various compounds.

A rapid scan feature allows on-the-flow spectral acquisition for both emission and excitation spectra without interrupting the chromatographic elution.



560 Conductivity Detector

The 560 Conductivity Detector outstanding features are high background suppression, baseline stability, and signal linearity over a range of several decades.

These characteristics become especially important when single column techniques are employed, e.g. for the determination of alkaline ions and alkaline earths.



105 High Sensitive Electrochemical Detector

Konik model 105 detector is specifically designed for repetitive applications and increased ease of use.

Two methods can be stored.

The digital display shows all important parameters for efficient interpretation: Volt on nA/V output data, volt on nA/V offset, potential, time constant, base line decay, sensitivity, chromatogram...



85 LT-ELSD

Selection of the appropriate nebulizer and an innovative cell design minimize peak broadening. A series of six nebulizers are available to optimize the user's applications. In HPLC, four nebulizers cover the flow rate range from 5 μ L/min to 5mL/min, additionally there is one nebulizer optimized for U-HPLC and another one specifically for SFC. All these nebulizers can be readily and quickly changed to meet the requirement of the application. In addition, all parts of SEDEX 85 LT-ELSD are designed so that the observed peak widths are similar to those obtained with UV/Vis detectors.

Features:

- Low-Temperature evaporation of the mobile phase.
- Optimizes sensitivity of thermally labile and semi-volatile compounds.
- Complete Remote Control. The gas, heater, photomultiplier and lamp can be automatically shut off at the end of a series of analyses.
- Sensitivity is enhanced by digital signal treatment. An innovative signal processing algorithm minimizes noise and thereby optimizes sensitivity.



OTHER OPTIONS

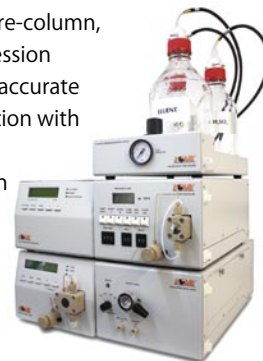
590 Ion Chromatography System

Ion Chromatography is one of the most important methods for the determination of alkaline, alkaline earth and transition metals, inorganic anions, sulfuric compounds of different oxidation levels, organic acids, and various tensides. Indeed, for aqueous solutions Ion Chromatography is one of the most sensitive methods for these substances, since in most cases the samples can be injected into the system without time consuming sample preparation. If required, e.g. for trace amounts, enrichment can be done within the chromatographic system.

The KONIK 590 Ion Chromatography System has a modular setup. Even the basic system is designed for most sensitive anion analysis employing suppression of eluent conductivity.

The column oven integrated into the system holds measuring cell, pre-column, separation column, and suppression columns, and thus guarantees accurate retention times and quantification with superior reproducibility.

The chemically inert pump with its pump head made of PEEK meets all the requirements of Ion Chromatography. It has two serial pistons thus delivering with extremely low pulsation.



Fract R1 Fraction Collector

The Fract R1 accommodates one rack and includes: Diverter valve, and one 13 mm tube rack. Ideal for Prep HPLC, Protein, and Peptide Purifications.

Features:

- Sturdy cast aluminum frame
- Easy to use symbolic touch screen interface
- Built-in Ethernet and RS-232 communication capabilities
- Faster tube changes
- μ L delay volume between diverter valve and drop former
- Flow rates up to 100 mL/minute



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