

930 Compact IC Flex



Compact ion chromatography system for routine analysis

930 Compact IC Flex: Entry-level model and workhorse for routine analysis

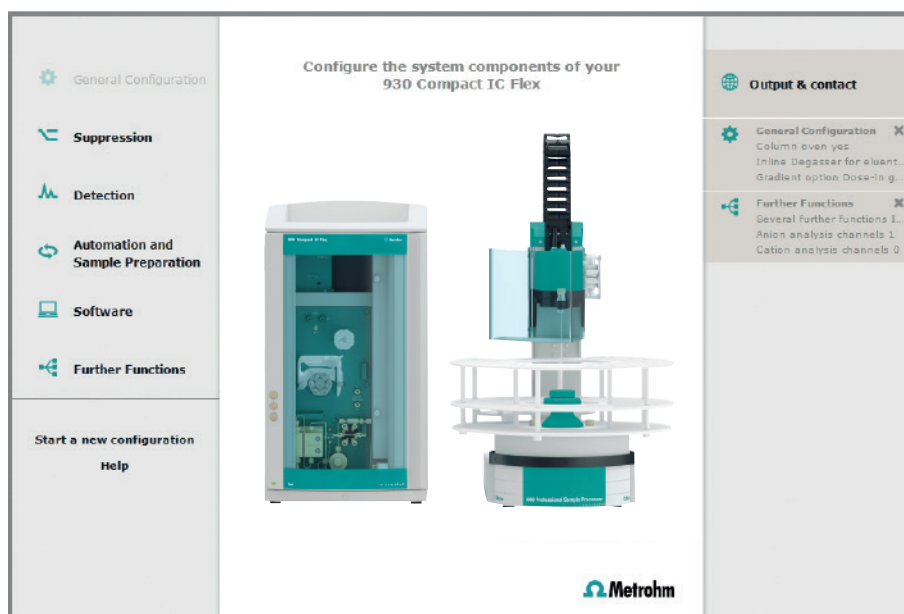
02

The 930 Compact IC Flex is Metrohm's new ion chromatograph for routine analysis developed with a focus on the requirements of contract laboratories and QC laboratories in all kinds of industries. Rugged design, perfect ease of use and outstanding system reliability are key features of the 930 Compact IC Flex. Monitoring and control functions for system parameters, service intervals, calibrations, and results take the stress out of daily routine operation while ensuring high-quality measuring results – even when things get hectic in the laboratory.

The new 930 Compact IC Flex system – as its name says – offers the highest possible degree of flexibility: You can choose from a complete range of separation columns, suppressors and detectors to configure a customized so-

lution that meets your specific analytical requirements. If necessary, the 930 Compact IC Flex can also be fitted with a column oven as well as an eluent and sample degasser. It goes without saying that the unique Metrohm Inline Sample Preparation («MISP») techniques are available in the new system, as are numerous options for automation.

Your way to your customized 930 Compact IC Flex system is simple: Use our new online configurator (ic930.metrohm.com) to select from a wide range of options and put together precisely the right system to meet your requirements. With the new 930 Compact IC Flex the dream of a customized high precision tool for routine analysis has at last come true!



The new 930 Compact IC Flex configurator allows you to put together your customized IC system for routine analysis in just a few steps. Combine up to 90 different instruments and accessory parts depending on the requirements of your application. Try it out on ic930.metrohm.com



03

Highlights

- Compact system for routine analysis of anions, cations and polar substances in the range of $\mu\text{g/L}$ to g/L
- Intelligent ion chromatography for superior reliability
- Modular kit of system components and accessories for custom system configuration
- Can be combined with all types of detection: conductivity, UV/VIS, amperometry
- Space-saving design, easily accessible system components
- STREAM – the green way of suppression
- Complete automation and unique Metrohm Inline Sample Preparation («MISP») possible
- Complies with all GLP and FDA requirements
- Multi-language MagIC Net software for simple and intuitive operation
- Comprehensive monitoring- and control functions for high quality results

Applications

04

Small footprint, competitive price and measuring results of outstanding quality – Metrohm has revolutionized ion chromatography with the introduction of compact IC instruments. Nowadays these instruments dominate the field in routine water and environmental analysis. They are used for the investigation of drinking, surface, ground and waste waters.

However, the new 930 Compact IC Flex was not developed solely for these industries. Thanks to its great reliability, the system is perfectly suited for use in the pharmaceutical industry, e.g. for analyzing infusion solutions. Thanks to the system's flexibility, the 930 Compact IC Flex instruments are however also suitable for the chemical and food industries, where (in addition to conductiv-

ity detection) amperometric and UV/VIS detection are regularly used. Small to medium-sized laboratories on the other hand benefit particularly from the 930 Compact IC Flex' excellent price-performance ratio and the system's ease of use.

Furthermore, low detection limits also make the instruments in the 930 Compact IC Flex family an excellent choice for routine analysis in power plants with detection limits down to trace levels. And finally, the new compact ion chromatographs from Metrohm are not only suitable for routine analysis in the petrochemical industry but also for the quality monitoring of alternative fuels, e.g. bio-ethanol and biodiesel.



The 930 Compact IC Flex can be used to analyze gaseous, liquid, and solid samples. The Combustion IC system shown can be used for differentiated determination of the halogens and sulfur in combustible samples, e.g. plastics, raw or end products in the petroleum industry, samples from waste management or electronic components.

Fully automated analyses for more work efficiency and analysis reliability

Automation saves time and money

The 930 Compact IC Flex offers completely automated operation. For liquid samples alone, there are six different autosamplers available in a total of 23 versions. The individual systems differ with respect to sample capacity, cooling, liquid handling functions and additional valve options. This means it is always possible to find the optimum automation tailored to meet your requirements.



Intelligent injection techniques for an extended working range

Apart from the full-loop and internal-loop injection, the 930 Compact IC Flex can also be combined with various intelligent injection techniques such as the «MiPT» (Metrohm intelligent Partial-Loop technique) and «MiPuT» (Metrohm intelligent Pick-up technique). The variable injection volume of MiPT covers a sample measuring range that extends across 4 orders of magnitude. This means that samples in the range of 10 µg/L to 100 mg/L can be analyzed with a single calibration.



Metrohm Inline Sample Preparation («MISP»): More efficiency in routine operation and new fields of application

The Metrohm Inline Sample Preparation techniques – some of which are patented – significantly expand the scope of application for ion chromatography. Inline Ultrafiltration, Inline Dilution, Inline Dialysis or other techniques make even the most challenging samples manageable, such as suspensions or waste water samples that are loaded with proteins or extremely contaminated. The combination of Inline Dilution and Inline Ultrafiltration stands out here in particular as one of the most frequently used routine applications.



Anion and cation determination with just one autosampler

The 930 Compact IC Flex system allows simultaneous analysis of anions and cations down to the µg/L range. A setup of this kind is comprised of two Compact IC instruments sharing an autosampler. Together, they form a fully automated analysis system for processing sample series 24/7 determining a wide range of ionic components.



930 Compact IC Flex – the ideal partner for routine analysis

06

Maximum reliability

The 930 Compact IC Flex excels by superior reliability. The system is self-monitoring, i.e.

- System components are immediately recognized
- Instruments and other parameters are automatically integrated into the method
- All system and method parameters are monitored permanently
- Measuring results are traceable to every single step of the analysis

If a parameter exceeds a defined limit, the system automatically tells you so sending a message – in plain text. Operator errors that could theoretically cause damage to the separation column, for example, are thus virtually ruled out in practice

STREAM (Suppressor Treatment with Reused Eluent After Measuring) – the green way of suppression

Whether sequential, chemical or without any suppression: You have freedom of choice with the 930 Compact IC Flex. The suitable rotor is selected depending on the application and the column dimensions: «MSM-HC», «MSM II» or «MSM-LC». Each of these rotors fits in the transparent suppressor housing and, due to the robust design, comes with a 10-year manufacturer's warranty.

All 930 Compact IC Flex versions with suppression are equipped with STREAM. In the STREAM setup, the suppressed eluent is used for rinsing the regenerated suppressor unit after the detection. This means no additional rinsing medium is necessary. Apart from that, the flow of regenerant can be reduced to a minimum. The benefits are less need of chemicals and less liquid waste. Furthermore, STREAM enables nonstop system operation for at least two weeks – or even longer than that with inline preparation of the regenerant. This saves on manual working steps, reduces maintenance and thus helps cutting running costs.

Professional Liquid Handling

A peristaltic pump and the patented 800 Dosino are available for transporting auxiliary solutions in sample preparation, for transferring samples and for rinsing or regeneration procedures. The 930 Compact IC Flex can manage entirely without a peristaltic pump for suppressor regeneration. In this case, we recommend the new Dosino Regeneration «DR». This reduces the need for maintenance and increases system reliability.



Working continuously without manual intervention

Combined with the 941 Eluent Production Module, the 930 Compact IC Flex integrates automated inline preparation of eluents of any composition and concentration. Connect an ultrapure water system (e.g.; ELGA PURELAB flex5/6) to the system and you may use conventional tap water for your ion chromatography. Automated inline eluent preparation ensures stable retention times, contamination-free working and saves manual working steps.



Perfect flexibility for the best application solution

Each sample may require different sample preparation and/or analysis. This is why the 930 Compact IC Flex offers a wide range of system components that can be selected to meet the particular purpose and requirements: with or without column oven; Dose-in Gradient; eluent and sample degasser; conductivity, UV/VIS or amperometric detection or a kind of inline sample preparation it may be – the optimum solution is available with the 930 Compact IC Flex. Moreover the 930 Compact IC Flex can be operated with any separation column, regardless of the base material, particle size or dimensions.

MagIC Net – user-friendly software

The instruments of the 930 Compact IC Flex series are controlled by the proven MagIC Net ion chromatography software. Freely configurable user windows, and graphic symbols for the individual system components make the software simple and intuitive to use. MagIC Net is available in no fewer than 14 languages!

Reliable results – automatically!

A wide range of monitoring and control functions ensure highest reliability – of both the system itself and the quality of the results produced. Be it the number of injections on a separation column, a parameter exceeding defined tolerance limits for results or checking the calibration with a check standard – the 930 Compact IC Flex provides complete information. That's not all: If required, the system intervenes and takes action automatically. For example, recalibration is carried out automatically if the check standard should fall outside the defined limits.

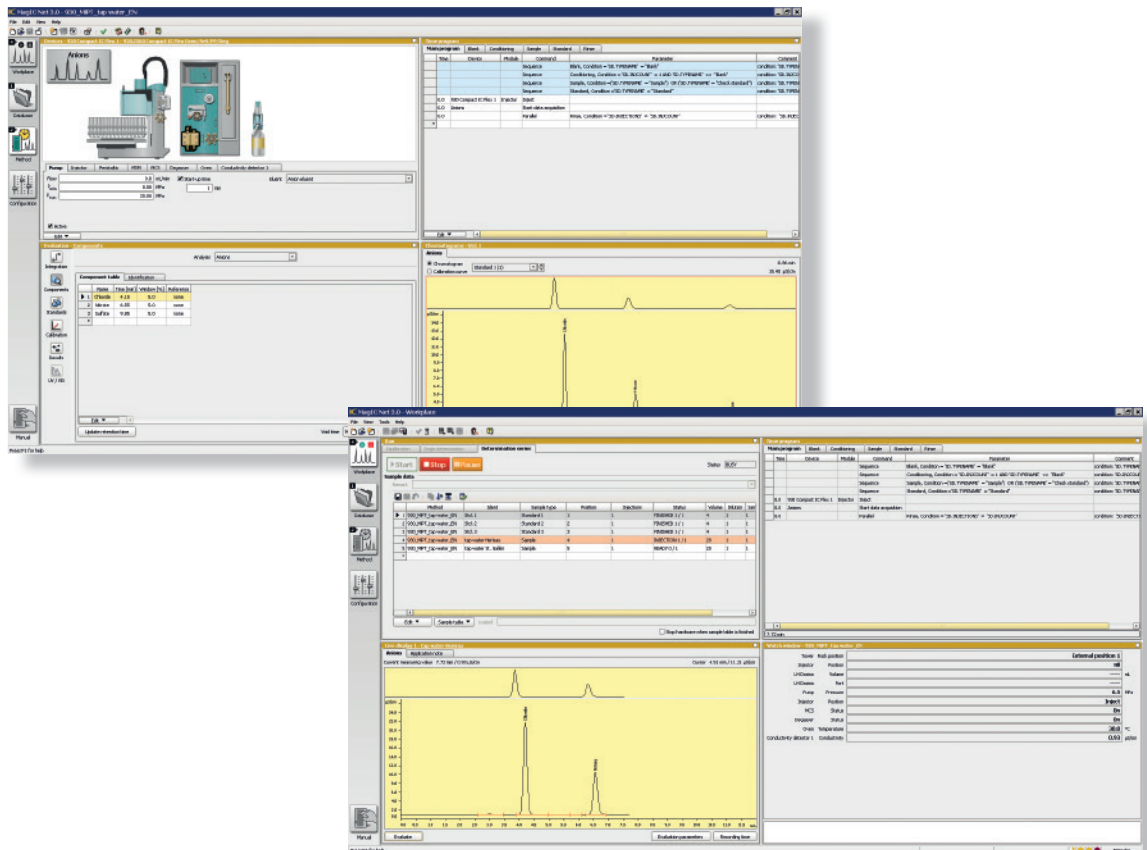
MagIC Net – the ion chromatography software

08

The instruments in the 930 Compact IC Flex series are controlled by the proven MagIC Net ion chromatography software. MagIC Net also controls any peripheral devices for Liquid Handling and automation. MagIC Net records the results produced, enables modern data management and reporting as required by the user.

MagIC Net is easy to command. The user interface can be freely configured and adapted to the needs of the user. Thus, only those windows are visible that are actually needed; the kind and scope of information in these windows can, in turn, be defined as required by the user. If required, system command can be simplified to a single click on the start or stop button on the screen! As MagIC Net is available in 14 languages, linguistic misunderstandings and resulting errors by the operator are virtually ruled out.

MagIC Net provides self-monitoring of the system and ensures that any results produced are checked automatically. Thus, the software makes logical decisions and takes action by itself, if required. A good example would be the determination of the optimum dilution factor: If the concentration of the analyte is outside the calibrated range, then the system automatically calculates the required dilution factor and initiates dilution of the sample, ensuring that any results produced are always reliable.



Technical information



09

General	<ul style="list-style-type: none"> • Compact IC system with modular design • Intelligent system components • Combination with various detectors possible • Metal-free flow path • 3-year warranty
Intelligent system components	Intelligent technology is integrated in the following system components, among others: <ul style="list-style-type: none"> • iPump • iDetector • iColumn • 800 Dosino
Eluent and sample degasser	Organic modifier 0 - 100% (no PFC [perfluorocarbons]) Material fluoropolymer
High-pressure pump	Serial dual-piston pump with two valves and flow range-optimized, intelligent pump heads Flow rate 0.001 - 20 mL/min
Injection valve	Injection volume: Internal loop 0.25, 1 µL Sample loops 1.5, 5, 10, 20, 50, 100, 250, 1'000 µL
Column oven	Temperature range 0...+80 °C (ambient temperature +5...+40 °C) Stability <0.05 °C
Suppressors	«MSM II», «MSM-HC» and «MSM-LC» Metrohm Suppressor Modules for chemical suppression Type «Micro Packed Bed» suppressor Regeneration STREAM with peristaltic pump or 800 Dosino Organic modifier 0 - 100% Warranty 10 years «MCS» Metrohm CO ₂ Suppressor Type CO ₂ removal with fluoropolymer technology Organic modifier 0 - 100% (no PFC [perfluorocarbons])
Detectors	Options for integration in the system include: <ul style="list-style-type: none"> • Conductivity detection • UV/VIS detection • Amperometric detection
Conductivity detector	Intelligent high-performance conductivity detector with DSP – «Digital Signal Processing» Measuring range 0 - 15'000 µS/cm – without range switching Temperature 20 - 50 °C in 5 °C increments Temperature constancy <0.001 °C Cell volume 0.8 µL Electronic noise <0.1 nS/cm (at 1 µS/cm) Baseline noise <0.2 nS/cm (e.g. A Supp 5, standard conditions)
Peristaltic pumps	Rotational speed 0 - 42 rpm in increments of 6 rpm Shift direction clockwise and counterclockwise
Gradients	Dose-in Gradient: binary, ternary, quaternary, quinary Progression: step, linear
Automation	Combinable Autosamplers: 858 Professional Sample Processor, 919 IC Autosampler plus, 863 Compact IC Autosampler, 889 IC Sample Center, 814 USB Sample Processor, 815 Robotic USB Sample Processor XL
Metrohm Inline Sample Preparation «MISP»	Options for integration in the system include: <ul style="list-style-type: none"> • Inline Ultrafiltration • Inline Dialysis • Inline Matrix Elimination • Inline Dilution • Inline Extraction
Metrohm injection techniques	Every 930 Compact IC Flex is pre-installed with full-loop injection; options for integration in the system include: <ul style="list-style-type: none"> • Internal-loop injection • Metrohm intelligent Partial Loop Injection «MiPT» • Metrohm intelligent Pick-up injection «MiPuT»
Control	MagIC Net Compact, Professional and Multi ion chromatography software

Ordering Information

10

930 Compact IC Flex instruments	
2.930.1100	930 Compact IC Flex
2.930.1160	930 Compact IC Flex Deg
2.930.1200	930 Compact IC Flex ChS
2.930.1260	930 Compact IC Flex ChS/Deg
2.930.1300	930 Compact IC Flex ChS/PP
2.930.1360	930 Compact IC Flex ChS/PP/Deg
2.930.1400	930 Compact IC Flex SeS
2.930.1460	930 Compact IC Flex SeS/Deg
2.930.1500	930 Compact IC Flex SeS/PP
2.930.1560	930 Compact IC Flex SeS/PP/Deg
2.930.2100	930 Compact IC Flex Oven
2.930.2160	930 Compact IC Flex Oven/Deg
2.930.2200	930 Compact IC Flex Oven ChS
2.930.2260	930 Compact IC Flex Oven/ChS/Deg
2.930.2300	930 Compact IC Flex Oven ChS/PP
2.930.2360	930 Compact IC Flex Oven ChS/PP/Deg
2.930.2400	930 Compact IC Flex Oven SeS
2.930.2460	930 Compact IC Flex Oven/SeS/Deg
2.930.2500	930 Compact IC Flex Oven SeS/PP
2.930.2560	930 Compact IC Flex Oven SeS/PP/Deg



Detection	
2.850.9010	IC Conductivity Detector
2.850.9110	IC Amperometric Detector
2.944.0010	944 Professional UV/VIS Detector Vario
2.945.0010	945 Professional Detector Vario – Conductivity
2.945.0020	945 Professional Detector Vario – Amperometry
2.945.0030	945 Professional Detector Vario – Conductivity & Amperometry

MagIC Net software	
6.6059.301	MagIC Net 3.0 Compact
6.6059.302	MagIC Net 3.0 Professional
6.6059.303	MagIC Net 3.0 Multi

Automation	
2.814.0130	814 USB Sample Processor – 2T
2.815.0130	815 Robotic USB Sample Processor XL – 2T
2.858.0010	858 Professional Sample Processor
2.858.0020	858 Professional Sample Processor – Pump
2.858.0030	858 Professional Sample Processor – Pump – Injector
2.863.0010	863 Compact IC Autosampler
2.889.0010	889 IC Sample Center
2.889.0020	889 IC Sample Center – cool
2.919.0020	919 IC Autosampler plus



858 Professional Sample Processor – selection of accessories

6.2041.440	Standard rack 148 × 11 mL + 3 × 300 mL
6.2041.760	Rack 54 × 11 mL + 1 × 300 mL
6.2041.480	Rack 159 × 2 mL + 3 × 300 mL
6.2743.050	PP sample vessels (11 mL); 2'000 units
6.2743.040	PP sample vessels (2.5 mL); 2'000 units
6.2743.070	PP stopper with perforation, for sealing the sample vessels; 2'000 units
6.5330.130	IC Equipment: Liquid Handling Station

Liquid Handling

2.741.0010	741 Magnetic Stirrer
2.800.0010	800 Dosino
2.801.0010	801 Magnetic Stirrer MSB
2.941.0010	941 Eluent Production Module
6.2070.000	Support surface expansion for 801 Stirrer
6.3032.210	Dosing Unit 10 mL
6.5330.090	IC Equipment: Additional Eluent on the Eluent Production Module
6.5330.100	IC Equipment: Inline Dialysis
6.5330.110	IC Equipment: Inline Ultrafiltration
6.5330.120	IC Equipment: Inline Dilution
6.5330.150	IC Equipment: Dose-in Gradient
6.5330.170	IC Equipment: MiPuT
6.5330.180	IC Equipment: MiPT
6.5330.190	IC Equipment: Dosino regeneration
6.5334.000	Equipment 4-port stator and 0.25 µL rotor
6.5334.010	Equipment 4-port stator and 1.0 µL rotor



www.metrohm.com