

FX-2000 Flexible UHPLC System



**Design your own fully automated
UHPLC system with a variety of sample
preparation and detection options**

About Zivak



UNIQUE SOLUTION FROM ONE COMPANY

Zivak Technologies is an international company providing ready to use LC-MS/MS and HPLC analysis kits in the clinical diagnostic field. The Research & Development company also supplies its own fully automated sample preparation and injection systems which enable laboratories around the globe to make efficient use of their chromatography instruments in a fast, accurate and cost efficient way.

Index

- ③ What is FX-2000?
- ③ The Basic Model
- ③ Automass Software
- ③ Customise Your FX-2000: Optional Modules for Your Own Design
- ③ Custom Made Examples

What is FX-2000?

FX-2000 is a fully automated UHPLC system with optional sample preparation and detection modules. This system is aimed at:

- ⊗ Fully automatizing your chromatography analysis
- ⊗ Eliminating user errors caused by manual sample preparation
- ⊗ Addressing low throughput problem in chromatography analysis
- ⊗ Lowering the cost of analysis
- ⊗ Turning your mass spectrometry device into a convenient tool, a real walk away analyser for routine analysis.

FX-2000 allows you to compose your own fully automated UHPLC system tailored to the needs of your laboratory. Zivak Technologies offers a wide range of sample preparation module, UHPLC pump, degasser and detector options to choose from so that you can design what is best suited to your needs. FX-2000 can be connected to any brand or model of mass spectrometry device and turns your mass spectrometer into a real walk away analyser.

All sample preparation steps are carried out by fully automated modules, eliminating user errors caused by manual sample preparation. As all Zivak analysers, FX-2000 injects from closed cap primary sample collection tubes, you never have to worry about contamination. Thanks to its Liquid Level Detection capability, sample volume is no longer an issue. You do not have to use special vials for this system. FX-2000 works with standard sample collection tubes. FX-2000 will enable your mass spectrometer to become a convenient tool for routine analysis by lowering the cost of analysis, delivering solution to low throughput problem in chromatography analysis and eliminating user errors with its fully automated sample preparation modules.

With FX-2000 Flexible UHPLC System, all you have to do is to place your primary sample collection tubes and get results. You will not be bothered by opening sample tube caps or sample transferring.

The Basic Model



The Basic Model consists of Automass software, sample injection valve, column oven, UHPLC pumps, degasser, washing station/blow dryer, injection syringe pump, and pipetting and dilution pump.

Automass Software

Automass is a unique software which is designed to automatize all sample preparation steps, injection and chromatographic analysis for Zivak FX-2000 flexible UHPLC system. Automass supports and controls all modules of FX-2000 system. Users can configure sample preparation and injection steps and also define custom made methods for any type of analysis.

All sample preparation steps, sample injection, gradient pump method program, HPLC detector signal acquisition, automated calculation and reporting can be done by Automass software. With its simple and user friendly interface, Automass allows you to edit your sample list, edit your methods and run your analysis easily and fast.

Below sample preparation steps are supported by FX-2000 flexible UHPLC system:

- ⊗ Barcode reading & shaking
- ⊗ Sample Adding
- ⊗ Reagent Adding
- ⊗ Sample mixing
- ⊗ Vortexing
- ⊗ Centrifugation
- ⊗ Vacuum evaporation
- ⊗ Thermo shaking
- ⊗ Online SPE
- ⊗ Sample heating
- ⊗ Sample weighing



Features of Automass Software

- ③ User friendly graphical interface for easy sample handling, analysis and evaluation
- ③ TTL connection with any type of LC-MS/MS instrument of following vendors: Agilent, Sciex, Shimadzu, Waters, Thermo Scientific and Zivak Technologies
- ③ Fast, automated data processing and automatic peak detection
- ③ Allows user to create, edit and print custom designed reports
- ③ Automated LIMS transfer of processed results.

Sample Injection Valve

ZD-0403-0002-02

6 port 2 position sample injection valve (optional UHPLC selection)

**Column Oven**

ZD-1007-0000-00

Keep your column at a stable temperature for a better repeatability. Temperature can be adjusted on the software between +15 °C and 85 °C.

**UHPLC PUMPS**

0140-0000-00

2 Piston UHPLC pumps with 18000 psi maximum pressure. Flow rates between 0.001 to 5 mL/min

**Degasser**

ZD-0301-0000-00

For degassing the tubing lines and air bubbles in the system.



Washing Station Blow Dryer

ZD-0405-0024-01

For cleaning interior and exterior surfaces of the needle. Also has blowing capacity to dry the exterior surface of the needle to prevent contamination and secure a stable liquid level detection.



Injection Syringe Pump

ZD-0403-0001-02

For sample injection. Available in different sizes, according to sample operation (50 μ L, 100 μ L, 250 μ L, 1 μ L ...)



Pipetting and Dilution Pump

ZD-0403-0020-02

For washing needle and handling liquid operations in high volumes. Available in different sizes (1 μ L, 5 μ L, 10 μ L...)



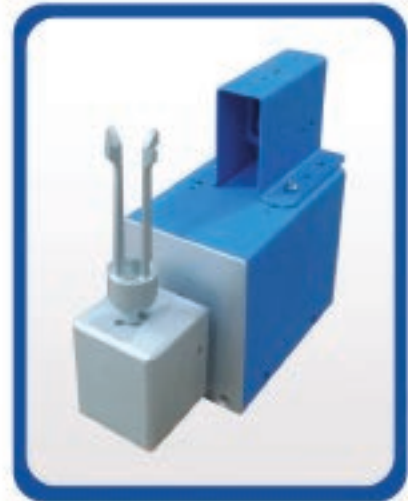
Customise Your FX-2000: Optional Modules for Your Own Design

Zivak Technologies offers a variety of sample preparation module, degasser, UHPLC pump and detector options to choose from. You can decide what is necessary for your analysis and add them to the Basic Model as you wish. The optional modules do not have to be placed in certain spots, you can arrange the optional modules at your convenience.

Barcode Reader & Shaker

ZD-0902-0000-00

Due to rotational barcode reading which followed by automated sample preparation, the system is independent from the position of the sample tube in sample tray. Barcode reader can invert the whole blood sample tubes for homogenisation before the sample preparation if needed. Also this system fulfils positive sample identification requirements of CE-IVD regulations.



Centrifuge

ZD-0705-0000-00

5000 rpm maximum speed with 8 sample capacity. It can run with 2, 4, 6 and 8 samples. Position control capability for automatization of the system.



Vortex

ZD-0706-0000-00

1500 rpm maximum speed with 8 sample capacity. Positioning capability for automatization of the system.



UV 4100 Detector

ZD-0209-0000-00

Variable wavelength UV-Visible detector. Works between 200 to 800 nm wavelengths. Available with 5 mm and 10 mm cells. Leakage control capability.



Antec ECD Detector

AL-171.0035

Offers flexibility and stable working conditions for all applications using Electrochemical Detection (ECD). It has a highly stable Faraday-shielded oven compartment accommodating the column and the electrochemical flow cell, to guarantee highest stability. To achieve unprecedented sensitivity in (U)HPLC/ECD the detector is equipped with a unique ADF filter to assure lowest noise level.



2xUHPLC Pump Set

ZD-0141-0000-00

2 Piston 2xUHPLC pump set with 18000 psi maximum pressure. Flow rates between 0.001 to 5 mL/min



Balance Module

ZD-0303-0000-00

Automated balance module. All steps are carried out by robotic arms.



Vacuum Evaporation System

ZD-1302-0000-00

Allows evaporation of samples with vacuum. Designed for well plates.



Well Plate Shaker

ZD-1801-0000-00

Thermo shaker for well plates.
Heating capability between ambient
and 99 °C. 3000 RPM maximum
shaking speed.



Heater/Cooler Shaker

ZD-0411-0000-00

Thermo shaker for well plates.
Heating capability between ambient
and 85 °C. 1500 RPM maximum
shaking speed. Also compatible with
vacuum evaporation system.



Heater/Cooler Tray

ZD-1008-0001-01

Heater cooler tray for glass vials.
Works between +4 °C and 100 °C.



96 Well Plate Tray

ZD-0403-0111-01

Tray for 96 well plates.



96 Well Plate SPE Module

ZD-1200-0000-00

Full automated well plate
SPE module.



Vacutube Tray

ZD-0403-0093-01

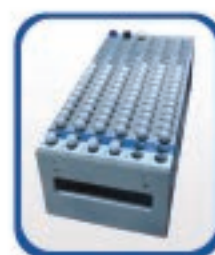
Tray for vacutubes. It can be adjusted both for whole blood tubes and serum tubes.



Glass Vial Tray

ZD-0403-0098-01

Tray for 2 mL glass vials. 108 for samples, 6 for calibrators and 6 for controls.



2D HPLC-LC Valve or Online SPE

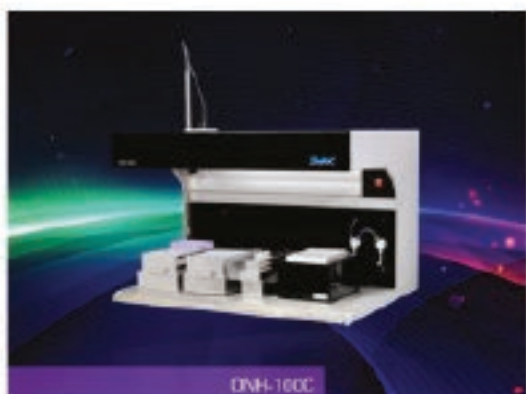
ZD-0404-0000-00

6 port 2 position HPLC valve (optional UHPLC selection) for valve switching or online SPE operations



Custom Made Examples

FX-2000 enables you to compose a UHPLC system exactly fitting to the application of your choosing. Due to this flexibility, FX-2000 offers a wide range of possibilities on the subject of usage area.



This system surveys the stability of a substance in a liquid. Prepares mixtures in desired proportions and sends samples to the detector at certain intervals to measure the quantity and stability of a certain substance. Has a UV/Vis detector with 5 mm light path flow cell. Because some impurities may cause the marker to deteriorate, fuel oil marker is added to ethanol samples in a certain proportion when working with bioethanol. The stability is surveyed with quantification in 6 hour intervals for a 48 hours period. 10 or 20 ml vials can be used for sample preparation. Sampling intervals can be customized and set to minutes, hours or days. While previously prepared samples are waiting to be analyzed, new samples can be added to the sequence list.

The reference instruments (LC-MS/MS) use an internal standard which is mixed by diesel before each analysis. Using this internal standard provides accurate and precise results which are not affected by any different color, dirtiness, particles or water in the fuel samples. This method is the primary method in chemical metrology which is used to reach SI unit. This mobile fuel marker and analysis system is truly unique. Reference instruments analyze optic and silent markers simultaneously with this methodology. The silent marker which eliminates the disadvantages of optical marker can only be analyzed by LC-MS/MS reference instruments.

This mobile analyzer is able to do analysis while driving, check tracer amount at petrol station and send report with GPS data to control authorities by satellite.



Prepares liquid mixtures gravimetrically with its built-in balance. There are no limitations to components in the mixture. Weights every time a component is added. Before adding sample, counterweight of the vial in which the sample is prepared is measured or the balance is reset. At the end of the process, add-on components and their quantities are reported. Gravimetric Sample Preparation for UV Spectrometers can be connected to any LC-MS/MS system.

ZIVAK[®]

TECHNOLOGIES

FUTURE OF ANALYSIS

www.zivak.com



Fast

Accurate

Cost Effective

Provides Solution