



## HT4000L

**THE HPLC AUTOSAMPLER LAB-AUTOMATION READY**

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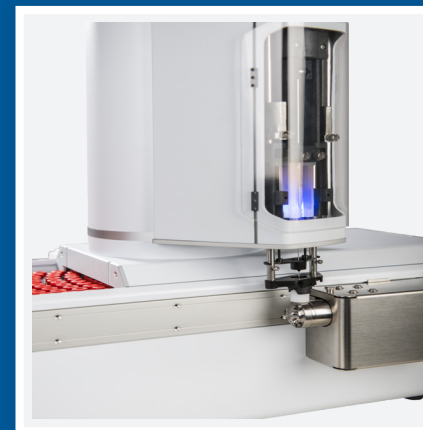
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## KEY FEATURES:

- Easy To Use
- Large sample capacity
- Application versatility
- Modular and scalable
- Lab automation ready



### EASY TO USE

Easy to use, easy to install and easy to service. We believe in a “robust by design” approach: **HT4000L** – based on cutting edge technologies and DFX design – well incarnates this philosophy making itself the ideal instrument for installation in any scenario.

**Full loop** is performed with very high accuracy values, while **partial loop** also allows sample saving. The variable fill speed and the viscosity delay allow a **wide range of sample viscosities**; programmable sampling depth assures **high sample recovery capacity**.

All the routine operations such as analysis start, sample loading and extra wash can be managed by its dedicated keypad.

Set your method once using the complimentary **HTA Autosampler Manager**, then you just need to load samples and press **START**: experience a seamless integration with your Chromatography Data System.

### LARGE SAMPLE CAPACITY

**HT4000L** can handle up to **176 2ml-vials per run** or it can work with different kinds of sample vessels. **Inject samples out of vials** (2/4/6/10/20/40 ml), **test tubes, tube blocks or plates**.

**Save on consumables avoiding needs for sample reformatting**. Choose from standard racks or enquire for a custom design: custom racks pay for themselves in a few weeks. Furthermore, racks are easily interchangeable in order to allow quick switching across multiple configurations.

**No compromise in terms of solvent capacity and solvent selection**: we have a wide capacity to accommodate the most challenging requests. Solvents can be located in vials (for accurate micro- or nano-volume dispensing) or in bottles (for large-volume dispensing). Additional solvents modules may also be implemented in the field in case requirements change over the time.

**No need for solvent degassing**. While some autosamplers require a devoted degasser line or to degas offline wash solvent on each bottle refill, we do not. Enjoy **HT4000L**: less system requirement, less pain, less troubleshooting!

### APPLICATION VERSATILITY

**HT4000L fits all liquid chromatography systems**. It is able to look after the

widest range of applications including analytical, prep, UHPLC, IC, nano, LC/MS... and many more!

Within the standard configuration the autosampler is equipped with an automatic 6-port 2-way injection valve for analytical applications. However, a **wide selection of valves** for inert or extended pressure applications are also available as per **special injection ports** for applications where no valve is needed.

### MODULAR AND SCALABLE

**A wide range of accessories can be sourced and added in the field at any time**; they are available to implement your autosampler with. Contact your sales representative about your application requirement.

**Too many options? Don't worry; you don't pay for features you don't need**. We provide your LC autosampler at the best possible price; only at the time your needs change you will pay for the optional accessories to perform the new tasks without the hassle of buying a new autosampler. Your investment is future proof!

### LAB AUTOMATION READY

**HT4000L can fully automate your sample prep**. It can work as a standard HPLC autosampler. However you may want to delegate some sample preparation tasks: **HT4000L** can take care of them as no standard autosampler has been able to assist.

**Dilution, precolumn derivatisation, pH spiking and internal standard addition** are available within the standard

version: no extra cost required. These operations can be performed in place or in an empty vial by sample dispatching.

If standard sample preparation capabilities are not enough, get the **HTAPREP** option. Using **HTAPREP - lab automation software** - you can add support to complex and custom autosampler methods. **Design your own methods** by Drag&Drop of autosampler functions (e.g. draw, dispense, mix, inject...) and start processing samples with the **smart processing engine** that allows you to optimise productivity and reagent consumption.

**Endless possibilities**: any sample preparation procedure or complex sample introduction become available: check the brochure of **HT4000A** (off-line version of **HT4000L**) to discover more.

### UHPLC READY

UHPLC applications require an extended pressure range and a reduced amount of injected sample. **HT4000L is optimised for such requirements and can be supplied with an UHPLC injection valve or can be upgraded in the field at a later time**.

Also in this configuration **HT4000L** features extraordinary analytical performance with the highest reliability.

### LARGE-VOLUME CAPABILITY

**The only real autosampler choice in the market for large-volume applications**.

We provide you with everything you need for your large-volume applications: large sample vessel support, large injections up to 10ml, large solvent capacity, large bore size injection valve (or injection port) for real and complete automation.

### BIOCOMPATIBLE

To handle more complex samples and to assure covering a wider pH range, inert flow path valves are available. **No need to compromise when it comes to running metal-sensitive samples or corrosive solvents/buffers**.

Furthermore, biocompatible applications can take advantage of the **double wash step capability**: as pre- and post-wash solvent in addition to A, B... F solvents you can also choose a combination of A+B, A+C.... F+E solvents for superior analytical performance (carryover adverse!).

### COOLING

The Cooling Module offers the capability to maintain samples at a controlled temperature.

The **cooling option upgrade can be performed in the field** in a very short time: you don't need to make a decision about cooling at the time the autosampler is sourced!



## TECHNICAL SPECIFICATIONS

### General features

Syringe volume:	Standard: 100, 250, 500µl and 1, 2.5, 10ml Nano-Volume Opt.: 5, 10, 25, 100µl
Tray capacity (standard):	176 vials, 2ml (1 removable rack) 96 vials, 4ml (1 removable rack) 54 vials, 6/10/20ml (1 removable rack) Custom trays available
Tray capacity (cooled):	121 vials, 2ml (1 removable rack) 42 vials, 6/10/20ml (1 removable rack)
Maintenance:	Preventive counters available
Electrical control:	LAN and TTL

### Analytical performance<sup>1</sup>

RSD:	Full loop: ≤ 0.25% (typically 0.15%) Partial loop: ≤ 0.5% ≥ 0.9999
Linearity (r):	≥ 0.9999
Carry over <sup>2</sup> :	≤ 0.05% (with standard wash) typically ≤ 0.01% (with int/ext needle wash)

### Wash (Pre & Post Injection)

Washing cycle:	up to 15 (Mode: every injection/sample/step)
Reagents:	up to 2 different reagents for wash function
Stator wash:	programmable

### Filling

Sample volume:	as low as step of 1µl <sup>3</sup>
Air volume:	as low as step of 1µl <sup>3</sup>
Filling speed:	1-100µl /sec <sup>3</sup>
Viscosity delay:	0-25s
Bubble elimination:	up to 15 pull up strokes

### Injection

Injection mode:	Full Loop, Partial Loop
Flush Volume:	programmable
Injection speed:	1-500µl /sec <sup>3</sup>
Analysis time:	0-999min
Wait time between consecutive injections:	as low as 12sec <sup>4</sup>

### Dilution, derivatization, pH spiking, IS addition

Sample dispatch:	step of 1µl <sup>3</sup>
Reagent addition:	step of 1µl <sup>3</sup> ; up to 3 different reagents
Mixing cycle:	programmable
Intermediate wash cycle:	up to 15
Reaction time:	0-100 minutes (0.1 minutes step)

### Physical features

Dimensions (WxHxD):	310x705x690mm
Weight:	15kg
Power supply:	100-240±10%Vac; 50-60Hz; 55W

### Cooling Module

Technology:	Peltier
Temperature range conditioning:	from 4°C to 40°C
Temperature accuracy:	+/-1°C (typically +/-0.5°C) between the vials
Cooling capacity:	about 20°C below the RT (on the vial)
Working ambient temperature:	25°C +/-10°C
Weight:	about 5kg
Power supply:	100-240±10%Vac; 50-60Hz; 120W
Field installation:	yes

### Additional modules:

Among the most popular modules:

- Vortex
- Barcode reader (BCR)
- Vial Heater/ Reaction Cell
- Gripper for vial displacement
- Internal/external needle washing

Free software "HTA Autosampler Manager (Standard Version)" is provided for PC control; upgrade to "HTA Autosampler Manager (CFR 21 Part 11 Version)" should be purchased separately. PC is required for setup, service, method and sequence editing.

<sup>1</sup>For volume ≥5µl; the values provided are for 100-1000µl syringes

<sup>2</sup>Tested with Uracile 100ppm in mobile phase 60% methanol : 40% water; Column C18; detector: UV fixed length

<sup>3</sup>It depends on syringe volume; the value provided is for 100µl syringe

<sup>4</sup>10µl Partial loop injection, with Prep Ahead Mode enabled



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