



ACE dual clamp
250 bar

FIG. 1:
CHRONECT Symbiosis Plus
Sampler shown with options: 2nd
valve, Peltier Stacks 2DW

CHRONECT Symbiosis Plus

This system offers all the advantages of online SPE to increase assay performance while reducing method development time. With the solvent selector in the SPH1299 pumps and the optional column selector in the new Mistral™ it also allows you to run multiple batches under different LC conditions. You can even choose to do direct injection or to include the extraction, without reconfiguring your system hardware! The mix and dilute routine will be handled by the innovative and flexible PAL Sampler. Sample preparation steps such as adding internal standard can also be performed. The system is equipped with a dual clamp ACE module for 250 bar cartridges. This allows to prepare the cartridge on one side and to elute to the HPLC column to analyze your sample at the same time by using the second cartridge clamp. In this configuration it is also possible to do LC peak focussing with mixed mode SPE cartridges. Your cartridge will be eluted by the HPD, the UHPLC pump will add the HPLC solvent in front of the column focussing the eluted sample on the LC column. The Plus system can be used for 2D-SPE, you can perform orthogonal SPE with two different types of SPE cartridges. This increases your sample clean-up and simplifies your method development. For example, you can easily notice if you have a breakthrough of your sample.

CHRONECT Symbiosis is controlled by CHRONOS Symbiosis, a software platform developed by Axel Semrau®. CHRONOS controls the entire system in an efficient and intelligent way and enhances sample throughput by performing overlapping processes. The cartridge will be prepared while the analytics are running. CHRONOS organizes the connection to the LC-MS.

All CHRONECT Symbiosis Systems process multiple batches/assays fast and reliably with the highest analytical performance, fully unattended.

System configuration

- SPH1299 UHPLC pump
- ACE dual clamp 250 bar, 4x UHPLC valves
- HPD MIX 1x SSM / Organizer, Mistral Cool
- PAL LSI sampler with second valve
- **CHRONOS Symbiosis** for control

Features

- SPE-LC and liquid injection without manual interaction
- Concurrent SPE sample clean-up and online-SPE-LC-MS/MS analysis
- LC-Peak Focussing mode and 2D-SPE
- Injection volume variable, standard 100 µL
- Fast wash of syringe, aspire & dispense
- Internal standard addition

With additional options

- Mistral CS Cool UHPLC for easy column handling
- Sample cooling with Peltier Stacks (4 to 40 °C)
- Solvent module with 3 extra solvents
- Higher capacity with more racks
- Better mixing with vortexer or agitator
- Integration in workflows with 2D Barcode Reader

Many more options are available...

Specifications

- Direct UHPLC injection (LC mode)
- ACE dual cartridge clamp (SPE-LC mode): 250 bar clamp & cartridges (10x 2mm ID), 4 UHPLC valves
- HPD Mix 1x SSM: 7 SPE solvents to select
- HPD syringe volume steps: 10 µL to 2 mL
- HPD SPE syringe flow rates: 100 µL/min up to 10 mL/min
- SPH1299 UHPLC gradient pump (binary gradient): 1300 bar, including degasser, 2x2 solvent selection for four different binary gradients, automatic purge and prime valves
- Mistral Cool column oven: 4 °C to 90 °C

PAL Symbiosis standard specifications

- PAL3 LSI, 1 tray plate with 3 racks (VT54: racks for 3x54 2 mL vials)
- 2 Valco injection valves
- 1 - 250 µL syringe (fixed needle, gauge 22, PST3, different syringes up to 1 mL available, if needed)
- Standard: 100 µL sample loop, variable loops possible
- Fast Wash module with pump and reservoirs for 2 solvents

Specifications of options

- Mistral CS Cool UHPLC: 5 columns plus drain, 4 °C to 75 °C, 1000 bar
- Sample cooling with Peltier Stacks 2DW or 6DW: 2 or 6x 54 2 mL vials, 4 °C to 40 °C
- Vortexer: 2 mL / 10 mL / 20 mL, one slot for custom specific vials, mixing with up to 2000 rpm
- Agitator: 6 positions for 20 mL vials, adapters for 2 or 10 mL vials (optional), temperature range 40 to 100 °C, agitation speed 250-750 rpm

CHRONOS Symbiosis software features

- Controls the entire system including integration in the lab environment
- Allows one sample list for front-end and LC-MS for MassHunter, OpenLAB, Analyst, LabSolutions, Masslynx, Clarity, Xcalibur & more
- Creates time schedules automatically with overlapping functions, comfortable functions to create task lists, easy navigation through bundling of tasks
- Ready-to-use methods, easy and safe method development, simple cut/copy/paste functions

CHRONOS specifications see: www.axel-semrau.de

Ordering Information

Article number	Description
AS-WS-0507	CHRONECT Symbiosis Plus - 250 bar clamps
AS-SP-886.202-UP	Upgrade MISTRAL CS Cool UHPLC (with Column Selector module)
AS-SP-730.110-UP	Upgrade HPD MIX 2x SSM
AS-CC-7420-SP	Upgrade Sample Cooling with Peltier Stacks 2DW (VT54, with two racks, 54x 2 mL vials without vials)
AS-CC-7421-SP	Upgrade Sample Cooling with Peltier Stacks 6DW (VT54, with 6 racks, 54x 2 mL vials without vials)
AS-CC-7555	Vortexer for better mixing
AS-CC-7550	Agitator for heated mixing
AS-CC-7575	Solvent Module - three additional solvents
AS-CC-5095	2D Barcode Reader - encoding up to 10 items of information on a 2 mL vial
AS-WS-0610	Upgrade 10 mL injection for environmental applications, requires RSI or RSI

Attention: Additional PAL options may require an upgrade of the standard 50 cm PAL LSI.

