



ACE one clamp  
250 or 1000 bar

FIG. 1:  
CHRONECT Symbiosis BASIC

## CHRONECT Symbiosis Basic

This system offers all the basic advantages of online SPE to increase assay performance. It minimizes manual sample preparation and gives you full traceability of the sample prep. With the solvent selector in the SPH1299 pumps and the optional column selector in the 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 autosampler. Sample preparation steps such as adding internal standard can also be performed. The system is equipped with a single clamp ACE module for the cartridges and allows sequential work. Times of cycles are about 8-10 minutes depending on the HPLC runtime, SPE sample prep time is about 4 minutes per sample. The system is upgradable to a higher throughput version with two clamps. This machine is ideal as a starting system for the full automation of sample prep with LC-MS analysis.

You can choose between two different ACE modules depending on the cartridges, you would like to work with. There is one option for 250 bar cartridges and one for 1000 bar cartridges available.

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. CHRONOS organizes the connection to the MS.

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

### System configuration

- SPH1299 UHPLC pump, Mistral Cool
- ACE one clamp 250 or 1000 bar, 1x UHPLC valves
- HPD MIX 1x SSM / Organizer
- PAL LSI autosampler
- CHRONOS Symbiosis for system control

### Features

- SPE-LC and liquid injection without manual interaction
- Online SPE sample clean-up and LC-MS analysis in series
- 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 for 3 extra solvents
- Better mixing with vortexer or agitator
- Integration in workflows with 2D Barcode Reader
- Upgrades to Plus and Advanced possible

*Many more options are available...*

## Specifications

- Direct UHPLC injection (LC mode)
- ACE single cartridge clamp (SPE-LC mode): 250 bar or 1000 bar clamp & cartridges, 1 UHPLC valve
- 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, various loops available
- 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 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](http://www.axel-semrau.de)

## Ordering Information

Article number	Description
AS-WS-0505	<b>CHRONECT Symbiosis Basic</b> - 250 bar clamp
AS-WS-0506	<b>CHRONECT Symbiosis Basic</b> - 1000 bar clamp
AS-SP-886.202-UP	Upgrade <b>MISTRAL CS Cool UHPLC</b> (with Column Selector module)
AS-SP-730.110-UP	Upgrade <b>HPD MIX 2x SSM</b> (12 solvents can be used)
AS-CC-7420-SP	Upgrade <b>Sample Cooling</b> with Peltier Stacks <b>2DW</b> (VT54, with two racks, 54x 2 mL vials without vials)
AS-CC-7421-SP	Upgrade <b>Sample Cooling</b> with Peltier Stacks <b>6DW</b> (VT54, with 6 racks, 54x 2 mL vials without vials)
AS-CC-7555	<b>Vortexer</b> for better mixing
AS-CC-7550	<b>Agitator</b> for heated mixing
AS-CC-7575	<b>Solvent Module</b> - three additional solvents
AS-WS-0610	Upgrade <b>10 mL injection</b> for environmental applications, requires RSI or RTC

**Attention:** Additional PAL options may require an upgrade of the standard 50 cm PAL LSI. Upgrades from CHRONECT Symbiosis Basic to Plus or Advanced are possible. Please ask your local representative.



MD Scientific is an authorized distributor in Denmark  
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