

Manual ASAP-4-Cary



DURATEC Analysentechnik - ASAP-4-Cary Version 1.0.7941.19582

DURATEC
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ASAP-4-Cary

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1 Specifications

Article: **810930**

Scope of delivery: ASAP-4-Cary : Automated sample processing software for Cary WinUV software modules „Concentration“, „Advanced Reads“ & „Scan“.

Requirements Windows 7 and higher, 2GB RAM, dotNet 4.5

Article: **810924**

Scope of delivery: Sample station PSC-280 with 2 rack positions, rinse station sample needle carbon/ PTFE ID 0,8mm (P/N 810923-004)

Dimensions : H 620mm / W 355mm / D 550mm
Weight: 8.1 kg
Rack positions: 2
Power requirement: 100-240 VAC, 37-63 Hz, 1.
Control: RS232, USB



Article: **810925**

Scope of delivery: Sample station PSC-560 with 4 rack positions, rinse station sample needle carbon/ PTFE ID 0,8mm (P/N 810923-004)

Dimensions: H 620mm / W 580mm / D 550mm
Weight: 11.7 kg
Rack positions: 4
Power requirement: 100-240 VAC, 37-63 Hz, 1.9
Control: RS232, USB



Article: **810923-026**

Description: Option: integrated persiltatic pump for sample flow and rinse sample needle



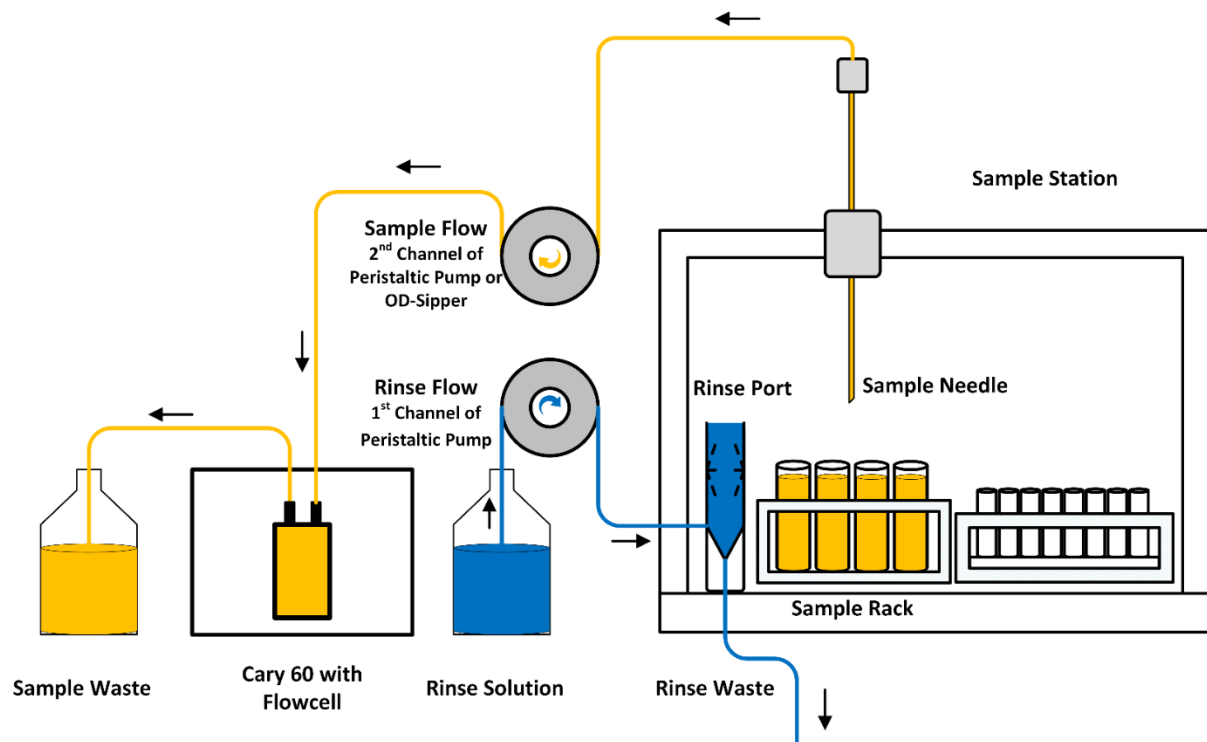
Article: **810930-001**

Description: Connecting cable USB to RS232 for PS-C280/560

Article: **810930-002**

Description : Connecting cable USB to RS232 for Agilent OD Sipper

2 Operating principle



The automated processing of sample sequences in a Cary 60 system can be realized by embedding a sample station together with a peristaltic pump. Settings and execution are performed within the Cary WinUV software without opening a separate software-program. Liquid samples are filled in tubes and placed in racks on the sample station. A sample needle moves sequentially to each position and transfers the liquid medium via a peristaltic pump into a flow-cell in the Cary 60 compartment. Then the signal is automatically collected. The sample needle can be cleaned between two samples in a rinse port to avoid contamination or carry over. During the run there is no interaction required from the end-user which enables free resources for other tasks

2.1 Workflow of a sample-sequence:

Samples to be measured are filled in suitable vessels (Vials, Tubes) and placed in racks on the sample station. In the Cary WinUV software the end-user edits via the setup menu the instrument settings for the Cary 60. From this menu an additional setup-dialog is called for settings of the sample station respectively the peristaltic pump. As soon as all information for a sample sequence is entered, the analyze run can be launched by click on the START-button. The sample station moves to the according position and the sample needle dives into the sample liquid. The peristaltic pump (or OD-Sipper) transfers the required sample volume into the flow-cell in the Cary 60 compartment. After a short time for stabilization the measurement is performed. Before the needle moves to the next position it can be cleaned at the separate rinse port as option. The needle moves to the HOME-position as soon as all samples have been processed and the sequence is completed inclusive report

General workflow:

1. Switch on devices (Cary, Sample Station , OD Sipper^(if used))
2. Open application ASAP 4 (Concentrations or Advanced Reads or Scan)
3. Load or create a method with specific parameters for the measurement
(Agilent Cary WinUV documentation)
4. Place samples, standards and blank solution on the sample station
5. Enter the positions of the samples, standards and blank solution in the
setup
6. Flushing the entire system (rinsing port to sample needle) with flushing
medium
7. Start the measurement sequence
8. Save the results/report

3 Installation

3.1 Installing the drivers and software

A USB stick was supplied with the system or the software was made available for download, which contains the required setup file. Start the following programs to install:

Setup ASAP-4-Cary xxxxxxxxxx.exe

- Installs the FTDI interface driver if required
- Installs the ASAP-4-Cary modules

After the installation you will find the shortcuts on your desktop as well as in the start menu.

3.2 Installing the connecting cables

- **OD-Sipper (if used)**

- is connected using the supplied USB-RS232 adapter cable. Use the cable with the label "OD-Sipper" and connect a free USB port on your computer to the OD-Sipper.



- **Sample Station (PS-C280 / PS-C260)**

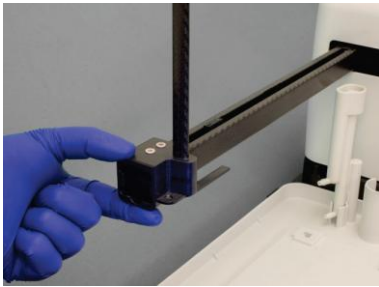
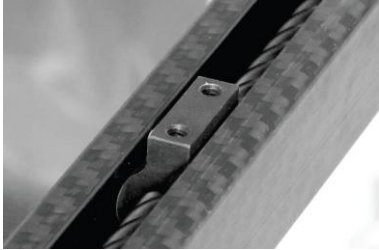
- is connected using the supplied USB-RS232 adapter cable. Use the cable with the label "Sampler" and connect a free USB port on your computer and the connection "COM1" of the sample station.



CAUTION!

The USB-RS232 adapter cables are no ordinary USB-RS232 adapters. The software only works with these cables. The cables are assigned to the devices and must not be mixed up.

3.3 Installing the needle unit



Slide the sample needle unit onto the arm up to the slide and fasten it with the two screws.

3.4 Installing the rinse station



Connect waste tubing to the rinsing station. Engage the rinsing station into the holder. Connect the waste tubing with a waste container. The waste container must be lower than the sampler

3.5 Installing the racks & standards

Place vial racks at the sample tray so that the feet on the rack's underside engage the locating slots on the sample tray's surface. Correctly placed sample vial racks will not move more than ± 2 millimeters in each direction.



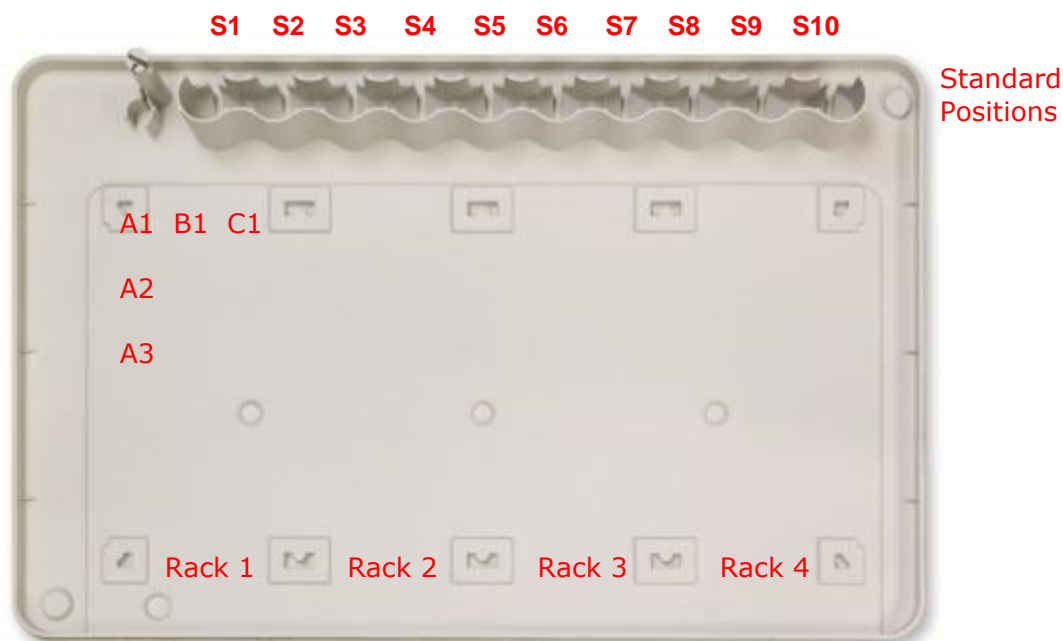
The name of the racks is from left to right R1, R2, R3, R4.

The designations of the vials on the racks is as follows: (A1 rear left)

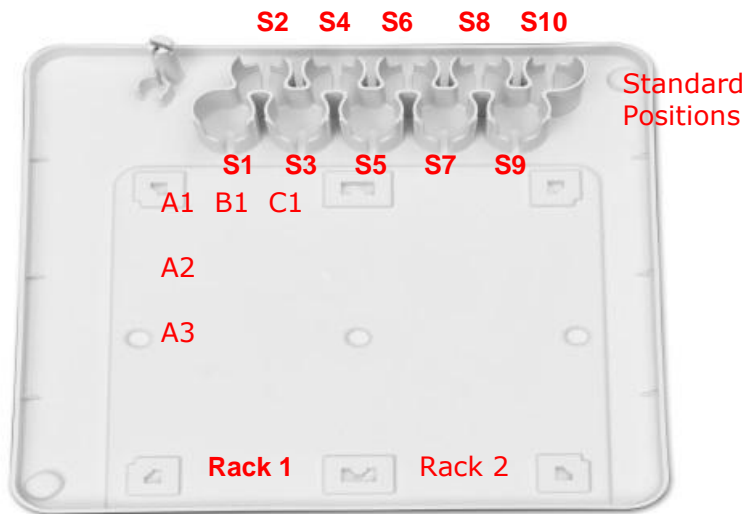
A1	B1	...
A2	B2	...
...

The complete name of each vial results from rack name, hyphen and vial position, for example: R1-A1, R2-B3

PS-C560



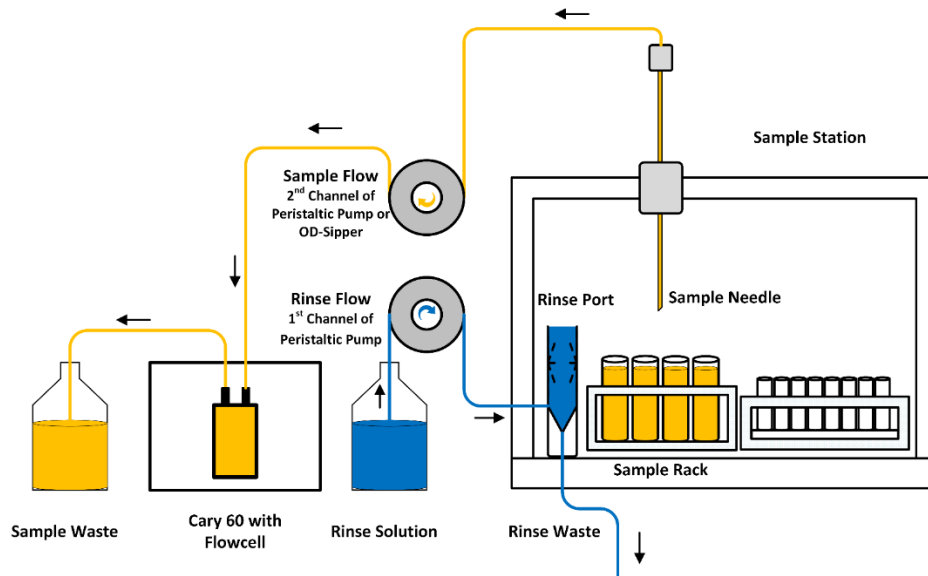
PS-C280



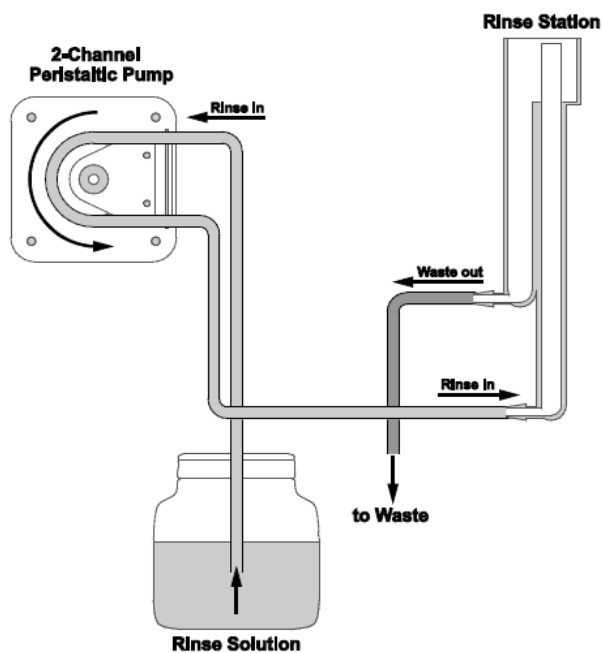
Rack types

3x7	50ml Vials	A1-A7/B1-B7/C1-C7
3x8	30ml Vials	A1-A8/B1-B8/C1-C8
4x10	20ml Vials	A1-A10/B1-B10/C1-C10/D1-D10
5x12	14ml Vials	A1-A12/B1-B12/C1-C12/D1-D12/E1-E12
6x15	7ml Vials	A1-A15/B1-B15/C1-C15/D1-D15/E1-E15/F1-F15

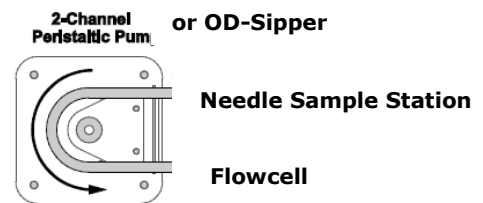
3.6 Fluidic Connections



Channel 1



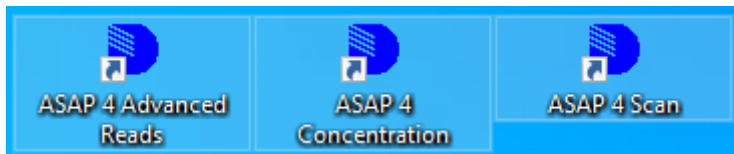
Channel 2



Fitting and adapter kit for sample path - inlet & outlet peristaltic pump (1/16" OD capillary & 1/8" ID tubing)

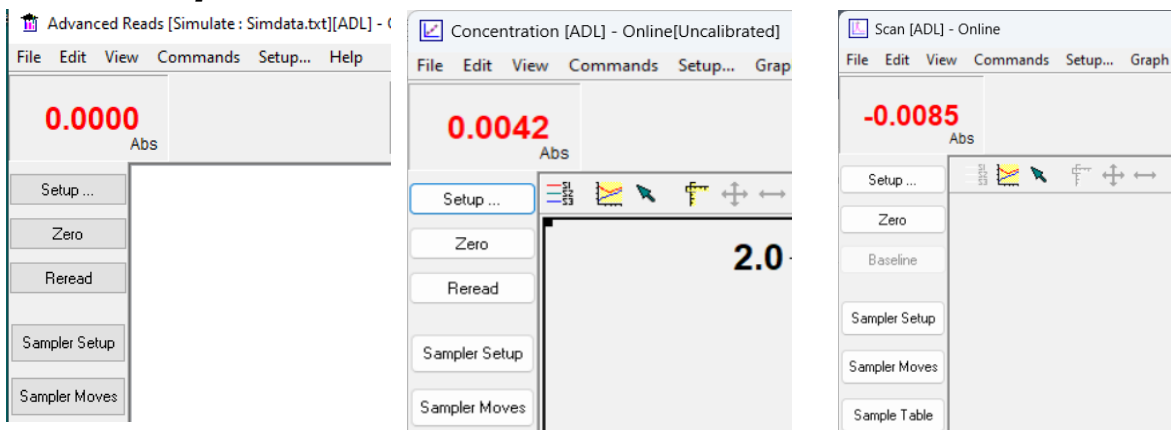


4 Software



The individual ASAP-4-Cary modules only run if the Agilent Cary WinUV is installed on the computer at the same time. However, the Cary WinUV must not be open for the execution of the ASAP-4-Cary software. Before you start the software module (via icons on the desktop), please switch on the photometer, the sample station and the sipper first. The ASAP-4-Cary software module automatically opens the Cary WinUV software in the appropriate mode. The specific ASAP-4-Cary settings are made at the button "Sampler Setup".

4.1 Setup

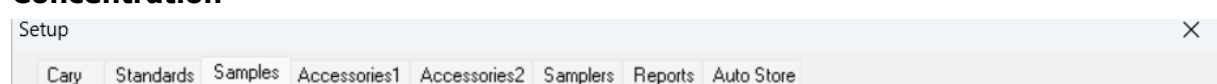


4.1.1 Setup overview

Advanced Reads



Concentration



Scan



4.1.2 Tab overview

Cary

Module: Advanced Reads / Concentration / Scan

- Setting the measurement parameter (Wavelength, Replicates, Time, Mode, ...)

Samples

Module: Advanced Reads / Concentration

- Sample table (quantity & name)

Standards

Module: Concentration

- Standards table (quantity & concentration)

Baseline

Module: Scan

- Setting Baseline mode

Accessories 1 & 2 / Samplers / Reports / Autostore

Module: Advanced Reads / Concentration / Scan

- general settings are made here

4.2 Cary Instrument Control

For more information, see the Agilent Cary WinUV documentation.

Module: Advanced Read / Concentration

Setup

Cary Samples Accessories1 Accessories2 Samplers Reports Auto Store

Cary Instrument Control

Instrument

Wavelength (nm) 500.0

☐ User Collect Read(500)

Ave Time (sec) 0.1000

Y Mode

Y Mode Abs

Factor 1.0000

Monitor Block

Replicates

☒ Replicates 1

☐ Sample Averaging 2

☐ Show Status Display

OK Cancel Help

Module: Scan

Setup

Cary Baseline Accessories 1 Accessories 2 Samplers Reports Auto Store

Cary Instrument Control

Y Mode

Start 800.0 nm Stop 200.0 nm

Mode Abs Factor 1.0000

Y min -0.05 Y max 1.00

Cycle

☐ Cycle mode

Cycle count 1

Cycle time 1.00 min

Beam Mode

Beam mode Dual Beam

Scan Controls

☒ Simple ☐ Advanced

Slowest Slow Medium Fast Fastest Survey

Temperature Monitor

Monitor Bath

Display Options

☐ Individual data ☒ Overlay data

☐ Show Status Display

OK Cancel Help

4.3 Sample Names Creation

For more information, see the Agilent Cary WinUV documentation.

Module: Advanced Read

Setup

Cary Standards Samples Accessories1 Accessories2 Samplers Reports Auto Store

Sample Names Creation

Sample Names

Number of Samples: 10

Sample Names

Sample 1

Sample 2

Sample 3

Sample 4

Sample 5

Sample 6

Sample 7

Sample 8

Sample 9

Sample 10

Increment Import Names

Weight/Volume Corrections

☐ Corrections

Method Weight: 1.0000

Units: g

Method Volume: 1.000

Units: mL

☐ Show Status Display

OK Cancel Help

Module: Concentration

Setup

Cary Samples Accessories1 Accessories2 Samplers Reports Auto Store

Sample Names Creation

Sample Names

Number of Samples: 10

Sample Names

Sample 1

Sample 2

Sample 3

Sample 4

Sample 5

Sample 6

Sample 7

Sample 8

Sample 9

Sample 10

Increment Import Names

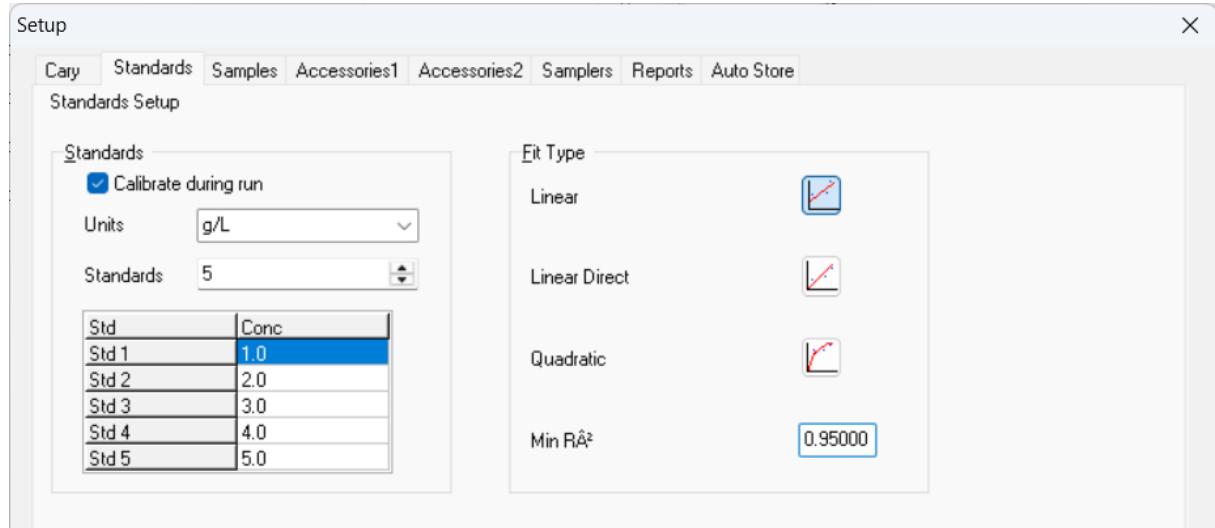
☐ Show Status Display

OK Cancel Help

4.4 Standards Setup

For more information, see the Agilent Cary WinUV documentation.

Module: Concentration



Setup

Cary Standards Samples Accessories1 Accessories2 Samplers Reports Auto Store

Standards Setup

Standards


☒ Calibrate during run


Units: g/L


Standards: 5

Std	Conc
Std 1	1.0
Std 2	2.0
Std 3	3.0
Std 4	4.0
Std 5	5.0

Fit Type

Linear 

Linear Direct 

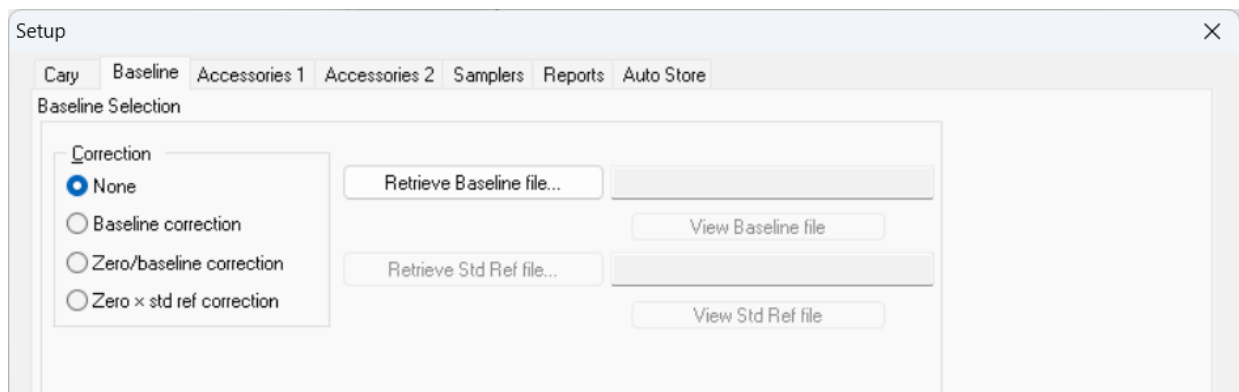
Quadratic 

Min RÂ²: 0.95000

4.5 Baseline Selection

For more information, see the Agilent Cary WinUV documentation.

Module: Scan



Setup

Cary Baseline Accessories 1 Accessories 2 Samplers Reports Auto Store

Baseline Selection

Correction

☒ None

☐ Baseline correction

☐ Zero/baseline correction

☐ Zero x std ref correction

Retrieve Baseline file...

View Baseline file

Retrieve Std Ref file...

View Std Ref file

4.6 Accessories 1 & 2 / Samplers / Reports / Auto Store

For more information, see the Agilent Cary WinUV documentation.

Module: Advanced Read, Concentration, Scan

Setup

Cary Samples Accessories1 Accessories2 Samplers Reports Auto Store

Accessory Setup and Control

Cells

Use Cells

Reset

Temperature

Comms Setup

Block 25.0

Temperature Display

Probes

Setup

Cary Samples Accessories1 Accessories2 Samplers Reports Auto Store

Accessory Setup and Control

Sipper

Comm port Com1

Fill (sec) 12

Delay (sec) 5

Fill

Fiber Optic SPS-5

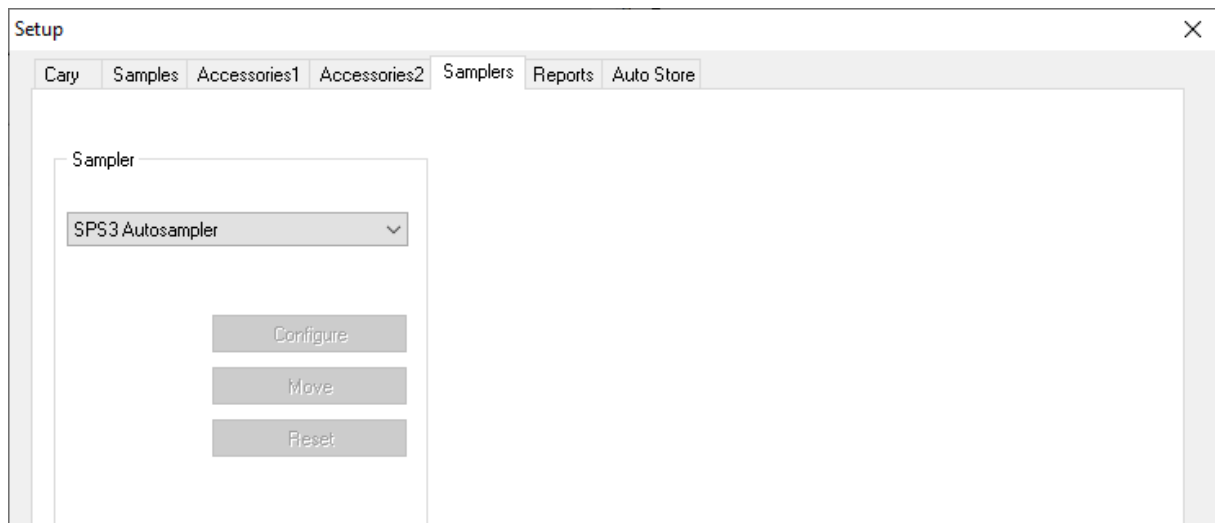
Probe Height (mm) 10

Shake Height (mm) 10

	Rack	Tube
Samples	1	2
Blank	1	1
Rinse	0	0

Move Park Align

Do not select anything in the sipper menu. If the OD Sipper is to be used, go to the "ADL" tab.



Setup

Cary Samples Accessories1 Accessories2 Samplers Reports Auto Store

Sampler

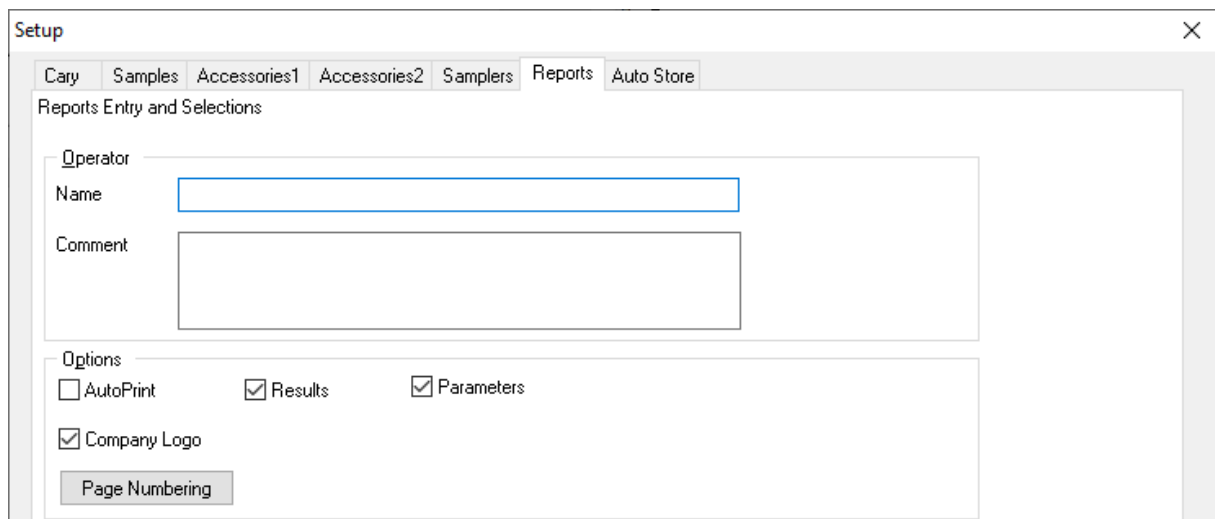
SPS3 Autosampler

Configure

Move

Reset

Do not select anything in the Samplers menu. The settings for the sampler are made via the ADL menu.



Setup

Cary Samples Accessories1 Accessories2 Samplers Reports Auto Store

Reports Entry and Selections

Operator

Name

Comment

Options

☐ AutoPrint ☒ Results ☒ Parameters

☒ Company Logo

Page Numbering



Setup

Cary Samples Accessories1 Accessories2 Samplers Reports Auto Store

File Storage

Storage

4.7 Sampler Setup / Sampler Move

Module: Advanced Read, Concentration

4.7.1 Sampler Setup

Vial Positions

Rack Format:

Selection field for racks. Only one rack format can be used for a run. For definition and naming of the rack types see „3.5 Installation of Racks & Standard“

Blank position (Zero):

Selection for the position for the blank or zero measurement

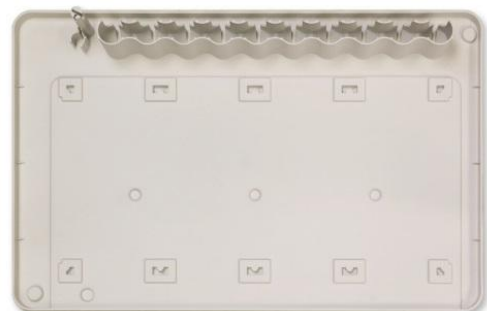
Start position (Standard):

Selection for the start position of the standards (only Concentration)

Start position (Sample 1):

Selection of the starting position for measuring the samples. The order is then defined via the order in "samples" in combination with the assignment in the rack

1	8	15
2	9	16
3	10	17
4	11	18
5	12	19
6	13	20
7	14	21



Use OD-Sipper:

Must be selected when using the OD Sipper

Load Sample

Station Setup

Vial positions | Load sample | Wash needle

Sampler Pump speed [%] 100

Pump duration [sec] 3

Delay after pump [sec] 2

Needle depth [mm] 150

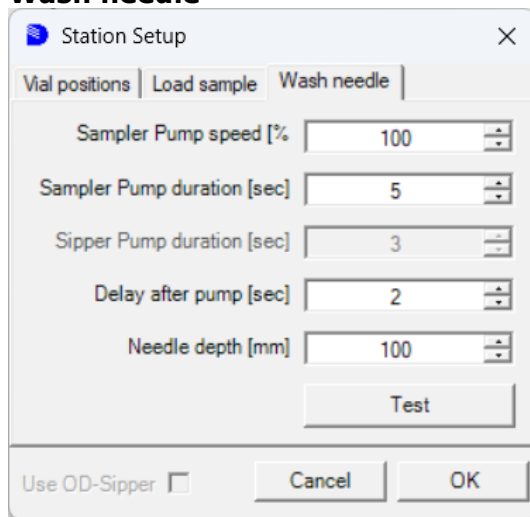
Test (R1-A1)

Use OD-Sipper ☐

Cancel OK

- Pump Speed:** Can only be set if the sample station pump is used as the "sample pump" - This only applies to models 280 & 560. Sample station models 260/520 and the OD-Sipper only run at one speed.
- Pump duration:** Duration for pumping the sample through the flow cell
- Delay after pump:** Time between the end of pumping and the recording of the measured value
- Needle depth:** Immersion depth of the needle in the sample, standard or blank vials
- Test:** Testing the selected parameters, e.g. to evaluate the correct settings

Wash needle



The 'Station Setup' dialog box has three tabs: 'Vial positions', 'Load sample', and 'Wash needle'. The 'Wash needle' tab is active. It contains five input fields with up/down arrows: 'Sampler Pump speed [%]' (100), 'Sampler Pump duration [sec]' (5), 'Sipper Pump duration [sec]' (3), 'Delay after pump [sec]' (2), and 'Needle depth [mm]' (100). Below these is a 'Test' button. At the bottom, there is a checkbox for 'Use OD-Sipper' (unchecked) and 'Cancel' and 'OK' buttons.

Sampler pump Speed: Speed of the sample station pump when washing

Sampler pump duration: Duration of flushing the rinse port. If the OD Sipper is used, this time should be at least 2-5 seconds longer than the "Sipper pump duration".

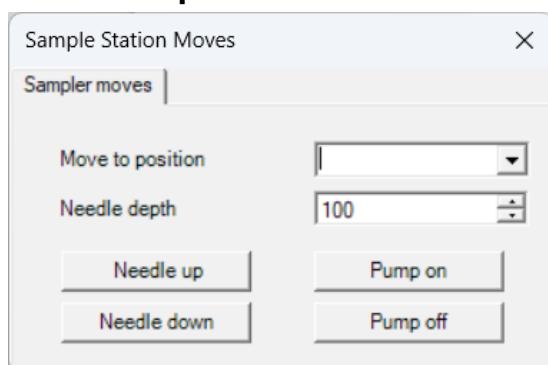
Sipper pump duration: Duration of flushing of the flow cell via the needle (only active if the sipper is used)

Delay after pump: Time between the end of pumping and the recording of the measured value

Needle depth: Immersion depth of the needle in the rinse station

Test: Testing the selected parameters, e.g. to evaluate the correct settings

4.7.2 Sampler Move

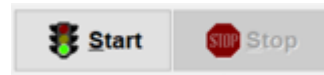


The 'Sample Station Moves' dialog box has a 'Sampler moves' tab. It contains two input fields with up/down arrows: 'Move to position' (empty) and 'Needle depth' (100). Below these are four buttons arranged in a 2x2 grid: 'Needle up', 'Needle down', 'Pump on', and 'Pump off'.

Testing the sample station functions.

4.8 Start sample sequence

1. Switch on devices (Cary, Sample Station , OD Sipper(if used))
2. Open application ASAP 4 (Concentrations or Advanced Reads or Scan)
3. Load or create a method with specific parameters for the measurement
(Agilent Cary WinUV documentation)
4. Place samples, standards and blank solution on the sample station
5. Enter the positions of the samples, standards and blank solution in the setup
6. Flushing the entire system (rinsing port to sample needle) with flushing medium (use "Test" function in "Sampler setup" – "Wash needle"
7. Start the measurement sequence
8. Run "Zero" (if necessary)
9. Run "Baseline" (if necessary – only Scan)
10. Start the measurement sequence
11. The samples are now processed one after the other, between two samples the needle is rinsed according to the setup settings.
12. Save the results/report



4.9 Stop sample sequence



The sample sequence can be ended during the run using the "Stop" button. After the stop has been triggered, the sample needle moves into the rinsing port and is rinsed. If you start again, the sequence will be executed again from the beginning and not from the position where it was stopped.



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