

Dual-Needle Infinity III Upgrade Kit

Installation Note

General Information

The Dual-needle Upgrade Kit is designed for very fast injection for high throughput and unmatched flexibility to obtain the best configuration for very small as well as very large injection volumes without any compromises on analysis time or performance. This upgrade kit can be installed in any Agilent InfinityLab LC Series Multisampler.

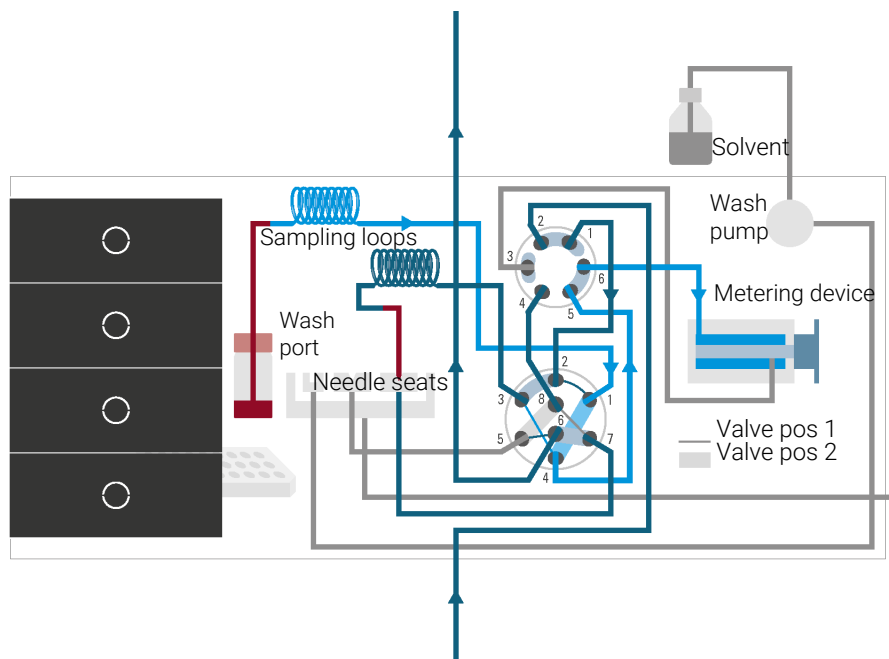


Figure 1: Valve in mainpass (main path) (right), drawing sample with left needle

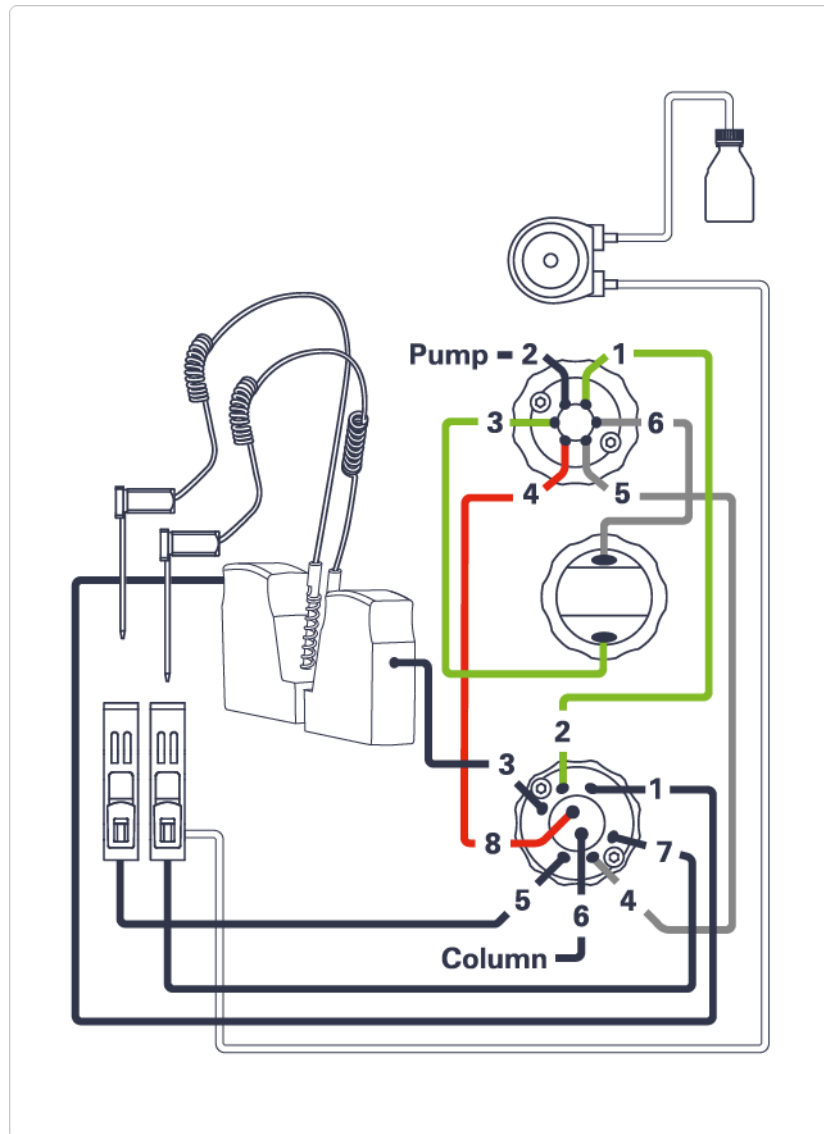


Figure 2: Capillary connections (Dual-Needle Option)

NOTE

If the Multisampler dual-needle option is installed you will lose the ability to do multi-draw.

Delivery Checklist

Make sure all parts and materials have been delivered with the upgrade kit. Report missing or damaged parts to your local Agilent Technologies sales and service office.

Qty.	p/n	Description
2	 G4267-87012	High Pressure Needle Seat, 0.12 mm (PEEK)
2	 G4267-87201	Needle Assembly
1	 G4267-60311	Sample Loop 20 µL right Dual needle for 1290 Infinity III Multisampler
1	 G4267-60301	Sample loop 20 µL left Dual needle for 1290 Infinity III Multisampler
1	 G4267-60511	Sample Loop 100 µL right Dual needle for 1260 Infinity III Multisampler
1	 G4267-60501	Sample loop 100 µL left Dual needle for 1260 Infinity III Multisampler
1	 G4267-60044	Needle Port Assembly Station
1	 5067-4256	3-position/6-port Peripheral Valve DN 1300 bar
1	 5067-4260	2-position/8-port Injection Valve Dual Needle 1300 bar
1	 G4267-60043	Analytical Head, 100 µL
1	 5500-1225	Capillary ST 0.12 mm x 180 mm SL-SL
1	 5500-1226	Capillary ST 0.17 mm x 180 mm SL-SL
1	 5500-1227	Capillary ST 0.17 mm x 150 mm SL-SL
1	 5500-1228	Capillary ST 0.3 mm x 80 mm SL-SL
1	 5500-1229	Capillary ST 0.3 mm x 180 mm SL-SL

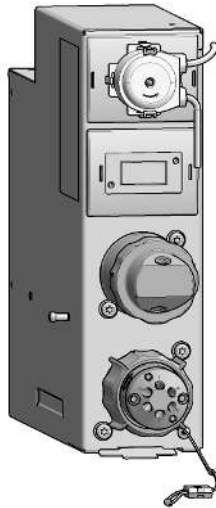
Installing the Dual-Needle Infinity III Upgrade Kit

The installation of the upgrade kit is divided into three parts:

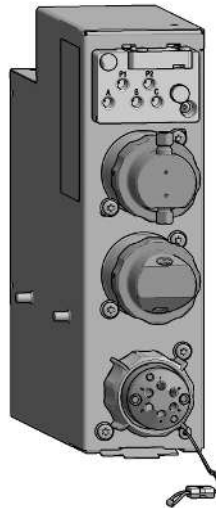
- removing the standard or multi-wash hydraulic box, see [Remove the Hydraulic Box](#) on page 4,
- installing the dual-needle hydraulic box, see [Install the Hydraulic Box](#) on page 6,
- configure the dual-needle feature in the CDS, see [Configure the Dual Needle Instrument Method in Open Lab C.01.06 and Above](#) on page 11.

Installing the Dual-Needle Infinity III Upgrade Kit

Remove the Hydraulic Box

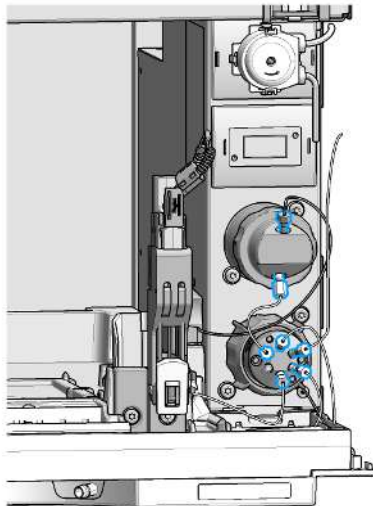


Standard



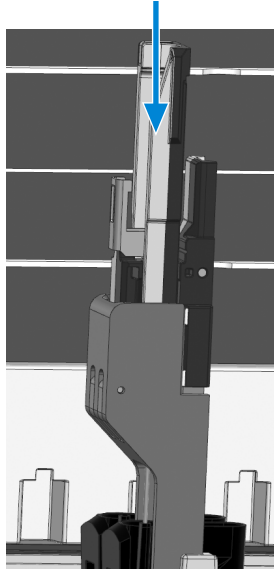
Multiwash

Tools required	Qty.	p/n	Description
	1		Wrench 1/4 inch
	1		Hexagonal key, 2.5 mm
	1		Torx screwdriver Tx 20
Prerequisites	Switch off the instrument.		
	1	Remove the capillaries, the tubings, and the leak sensor which are connected to the hydraulic box.	

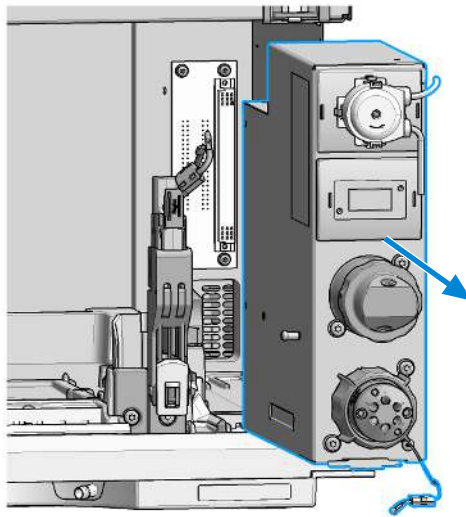


Installing the Dual-Needle Infinity III Upgrade Kit

- 2 Press the pusher to unlock the needle assembly.

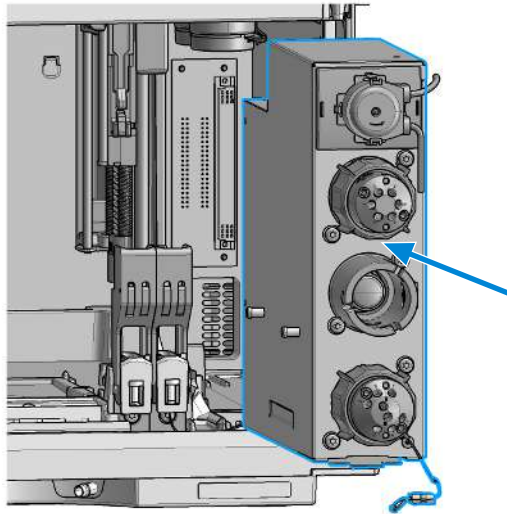


- 3 Remove the needle assembly and sample loop from the single needle instrument. Keep the needle seat.
- 4 Lift the clip (bottom of the hydraulic box) before you pull out the whole hydraulic unit.



Install the Hydraulic Box

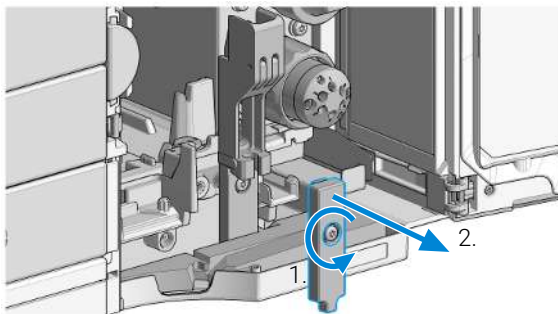
- 1 Install the dual-needle hydraulic box.



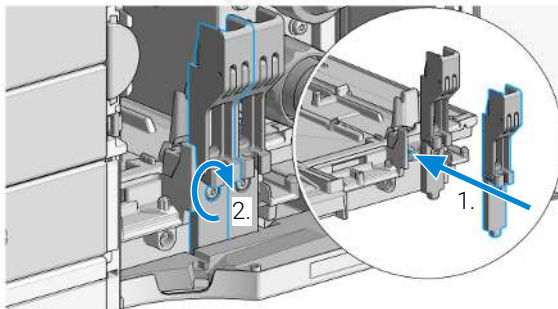
NOTE

Be careful that the hydraulic box is installed correctly and fits exactly in the main chassis.

- 2 Open the screw of the needle parkstation adapter (needle port adapter) and remove the needle parkstation adapter.



- 3 Install the second needle port assembly into the needle station on the left side.



Installing the Dual-Needle Infinity III Upgrade Kit

- 4 Install the dual-needle sample loops, the second needle assembly, the second needle seat, the tubing and the leak sensor which are connected to the dual-needle hydraulic box.

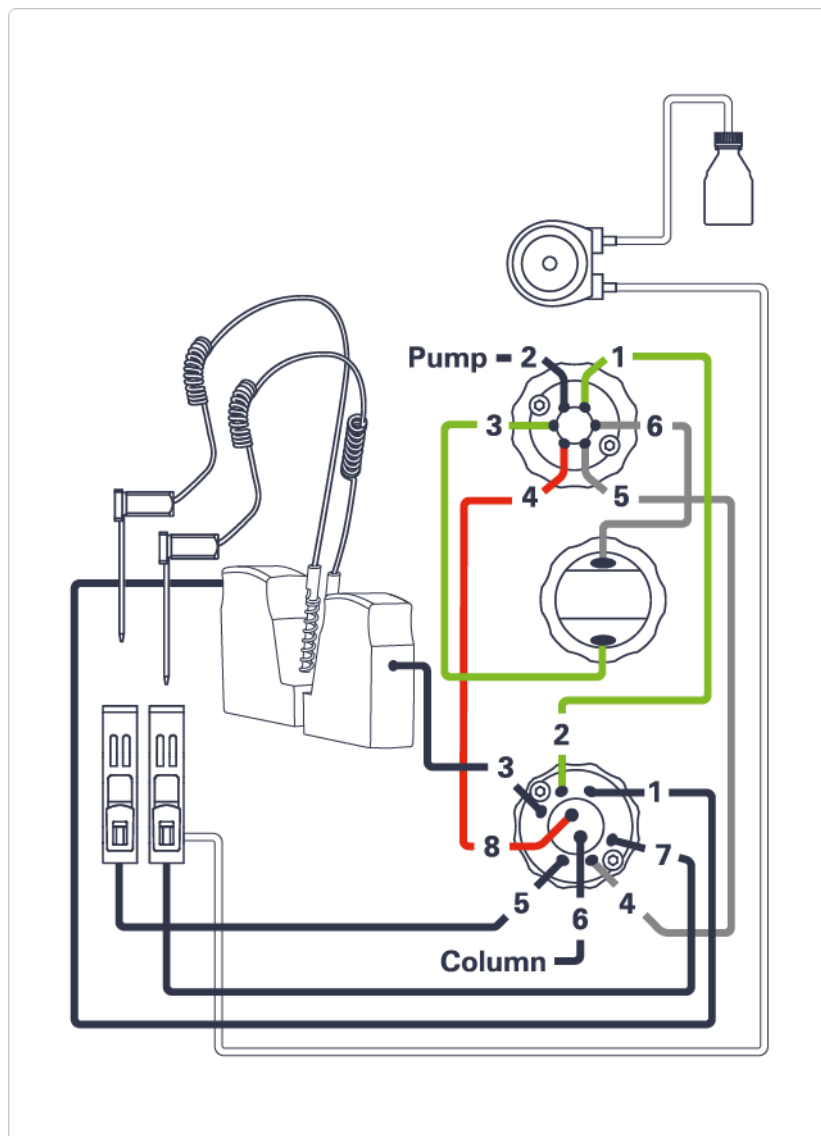


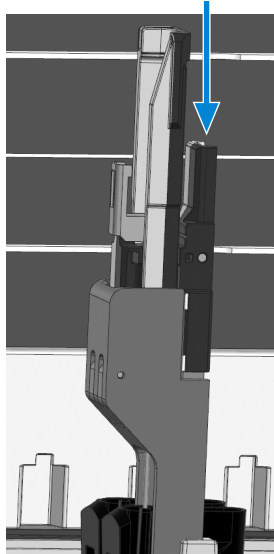
Figure 3: Capillary connections (Dual-Needle Option)

NOTE

Be careful when installing the capillaries. Do not mix up the capillary position. Only use dual-needle parts to avoid harm to the instrument later.

Installing the Dual-Needle Infinity III Upgrade Kit

- 5 Install the right needle assembly and push the adapter behind the pusher to lock the needle assembly correctly in the parkstation.



Installing the Dual-Needle Infinity III Upgrade Kit

- 6 Check the correct installation: The left dual needle sample loop in the rear position (Slot 1), and the right dual needle sample loop in the front position (Slot 2).

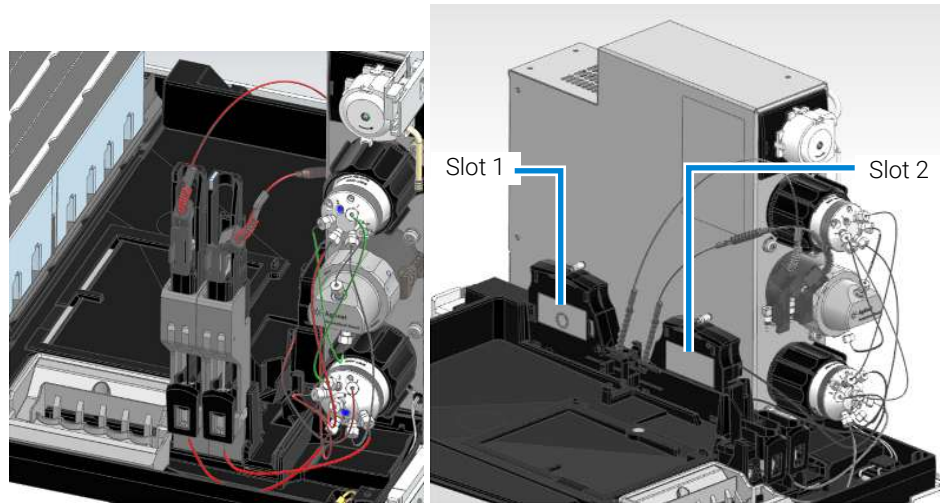


Figure 4: Additional needle parkstation plus second cartridge slot

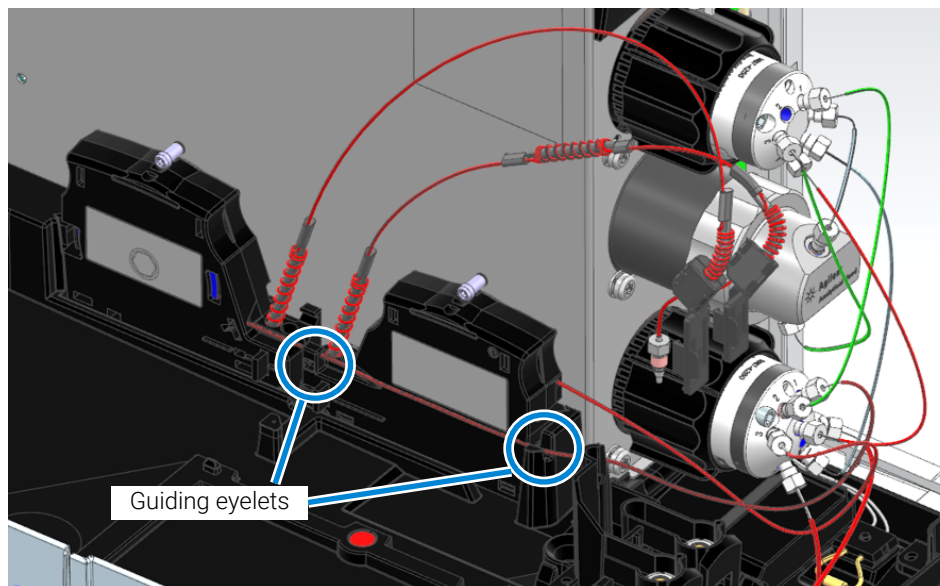


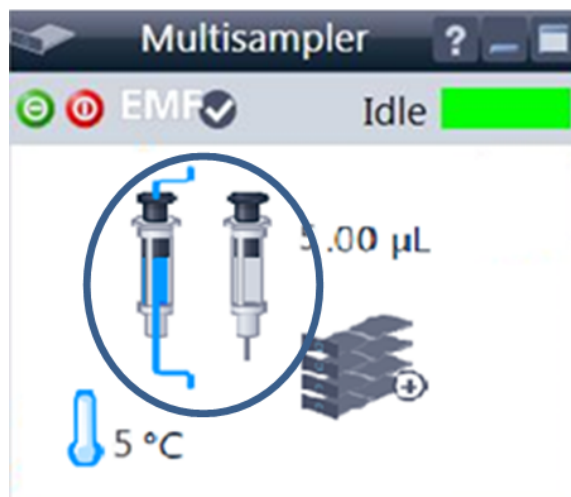
Figure 5: Eyelets for the left sample loop flex

- 7 Switch on the Multisampler.

Configuration of the Dual-Needle Option in the CDS

The configuration of your controller is not necessary to enable the dual-needle mode. In the GUI you will see the new dual-needle icon.

Installing the Dual-Needle Infinity III Upgrade Kit



- 1 Configure the correct dual needle sample loops in the CDS system.

The 'Capillary Setup' dialog box is shown. It has four main sections: 'Loop Capillary Left', 'Loop Capillary Right', 'Seat Capillary Left', and 'Seat Capillary Right'. Each section has a dropdown menu for the capillary type and two input fields for 'Physical Volume' and 'Injection Volume'. The 'Bypass capillary' section at the bottom has a dropdown menu set to 'None'. The 'Assign' and 'Cancel' buttons are at the bottom right.

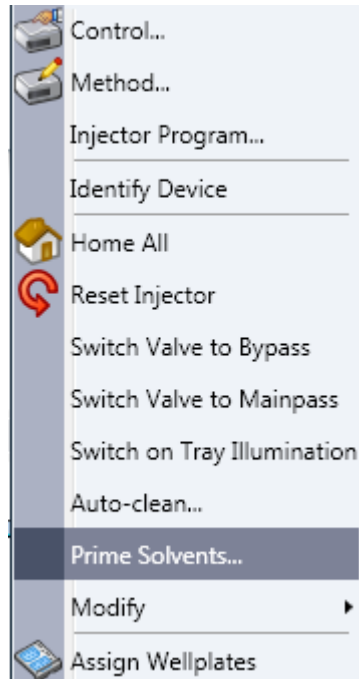
Section	Capillary Type	Physical Volume (µL)	Injection Volume (µL)
Loop Capillary Left	G4267-60301 : Loop 20 µL left Dual-Needle	40.00	20.00
Loop Capillary Right	G4267-60300 : Sample Loop-Flex 20 µL right	33.00	20.00
Seat Capillary Left	G4267-87012 : Seat assembly 0.12 mm 1290 Infini	1.50	0.00
Seat Capillary Right	G4267-87012 : Seat assembly 0.12 mm 1290 Infini	1.50	0.00
Bypass capillary	None		

NOTE

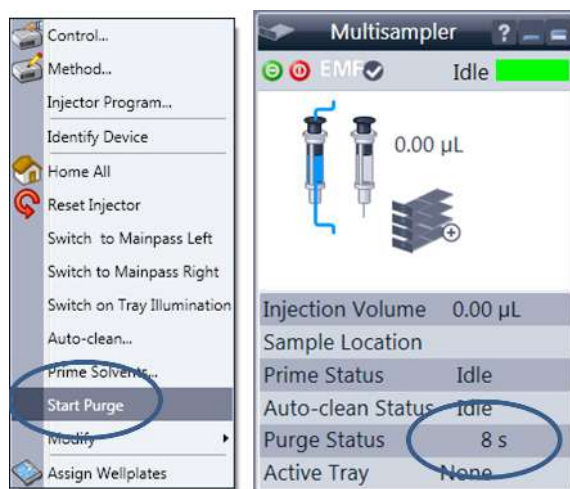
The hardware configuration must match the software configuration to avoid harm to the instrument.

Installing the Dual-Needle Infinity III Upgrade Kit

- 2 Prime the tubing with appropriate wash solvent.



- 3 Purge the multisampler to flush all capillaries with start condition. For 1290 Infinity III systems this will be done automatically if you start the pump flow. For 1260 Infinity III systems you have to do that manually. Depending on the configuration the purge time can vary.



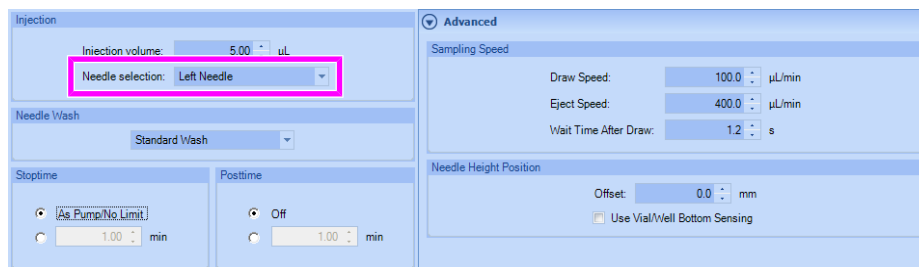
- 4 Perform a pressure test for the left and the right flow path in Lab Advisor.

Configure the Dual Needle Instrument Method in Open Lab C.01.06 and Above

- 1 Select **Instrument** in the menu.
- 2 Select **Setup Instrument Method**.

Installing the Dual-Needle Infinity III Upgrade Kit

- 3 Under **Needle selection**, you can select between right, left or alternating needle (depending on your configuration).

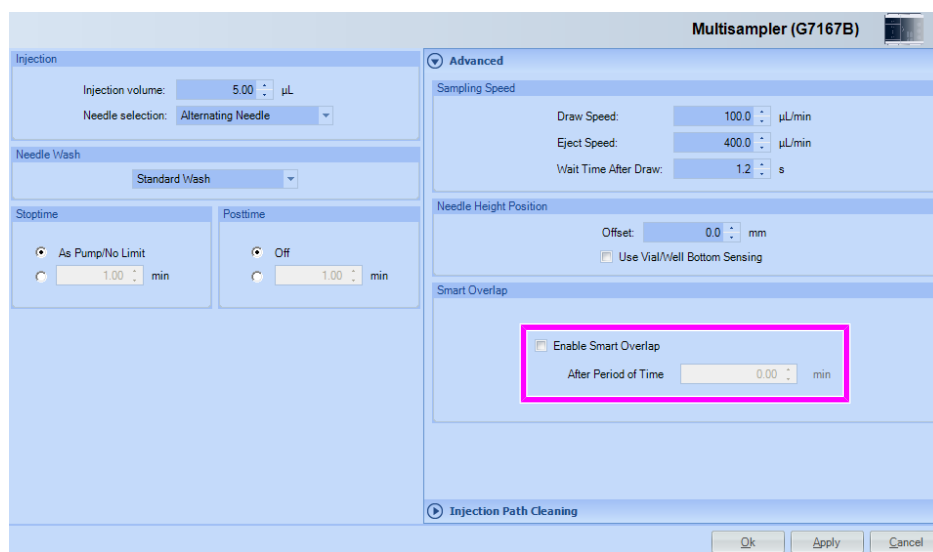


The screenshot shows the 'Injection' and 'Advanced' tabs in the OpenLab CDS software. In the 'Injection' tab, the 'Needle selection' dropdown menu is highlighted with a red box and is set to 'Left Needle'. Other settings visible include 'Injection volume' at 5.00 µL, 'Needle Wash' set to 'Standard Wash', and 'Stop/Posttime' settings.

NOTE

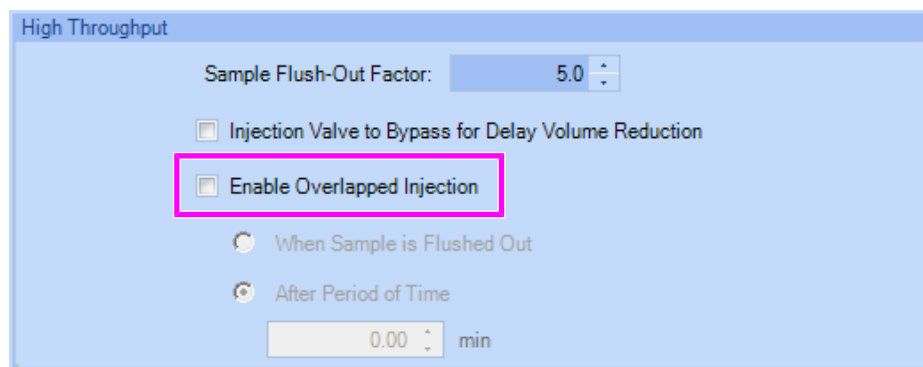
For OpenLab CDS, LC driver A.02.12 or higher is required.

- 4 In alternating needle mode, **Smart Overlap** is available. The the next sample is drawn with the other needle after a set time past the current injection. In contrast to overlapped injection, the flow path is flushed (carry-over reduction)



The screenshot shows the 'Advanced' tab in the OpenLab CDS software. The 'Smart Overlap' checkbox is highlighted with a red box and is checked. The 'After Period of Time' is set to 0.00 min. Other settings visible include 'Injection volume' at 5.00 µL, 'Needle selection' set to 'Alternating Needle', and 'Sampling Speed' settings.

- 5 Overlapped injection is available, if two different loops or a bypass capillary are installed.



The screenshot shows the 'High Throughput' tab in the OpenLab CDS software. The 'Enable Overlapped Injection' checkbox is highlighted with a red box and is checked. The 'After Period of Time' is set to 0.00 min. Other settings visible include 'Sample Flush-Out Factor' at 5.0 and 'Injection Valve to Bypass for Delay Volume Reduction'.

Configure the Bypass mode (Dual Needle option unused) in OpenLAB C.01.06 and Above

This setup is useful if you want to avoid long purge time. If only one path is used on a regular basis, a defined bypass capillary can shortcut one path to allow faster reconditioning.

Installing the Dual-Needle Infinity III Upgrade Kit

First the instrument hardware must be changed, see [Figure 6](#) on page 13. The bypass capillary is installed either on the right or the left flow path.

For the left bypass capillary, the connection from port 1 to port 5 has to be used. For the right bypass the capillary connection from port 3 to port 7 has to be used.

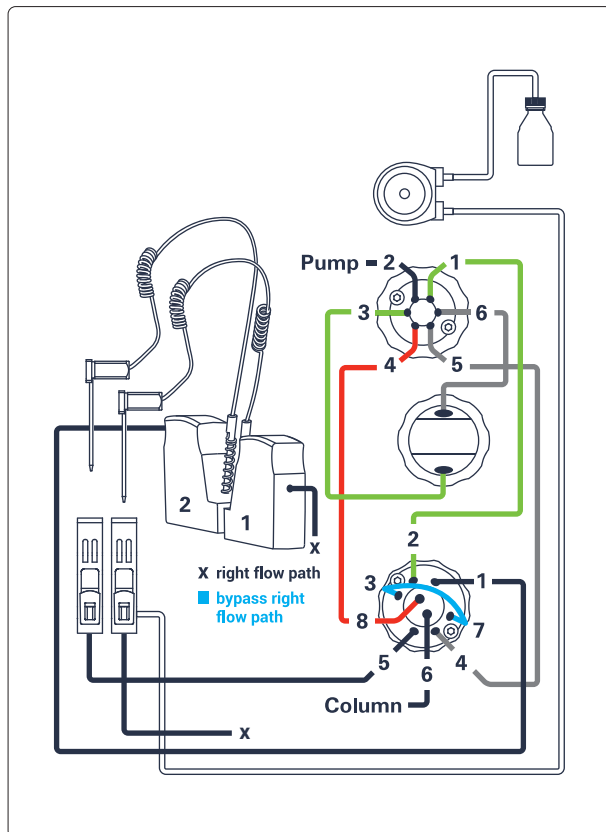


Figure 6: The right bypass capillary is installed

NOTE

Only the listed capillary PN 5500-1238 can be used as bypass capillary (either left or right).

Installing the Dual-Needle Infinity III Upgrade Kit

- 1 To set up the bypass capillary in the CDS, right-click into the active area, then select **Modify > Capillaries** from the context menu.

The **Capillary Setup** dialog box is divided into four sections for configuring capillaries:

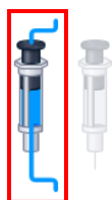
- Loop Capillary Left:** G4267-60301 : Loop 20 μ L left Dual-Needle. Physical Volume: 40.00 μ L. Injection Volume: 20.00 μ L.
- Loop Capillary Right:** G4267-60300 : Sample Loop-Flex 20 μ L right. Physical Volume: 33.00 μ L. Injection Volume: 20.00 μ L.
- Seat Capillary Left:** G4267-87012 : Seat assembly 0.12 mm 1290 Infini. Physical Volume: 1.50 μ L. Injection Volume: 0.00 μ L.
- Seat Capillary Right:** G4267-87012 : Seat assembly 0.12 mm 1290 Infini. Physical Volume: 1.50 μ L. Injection Volume: 0.00 μ L.
- Bypass capillary:** A dropdown menu currently set to **None**.

Buttons at the bottom right: **Assign** and **Cancel**.

- 2 Select **Right** or **Left** from the **Bypass capillary** dropdown menu, depending on which flow path you want to bypass.

The **Bypass capillary** dropdown menu is shown with **Right** selected. Buttons at the bottom right: **Assign** and **Cancel**.

In the active area, you will see that one syringe icon is greyed out, indicating that only one flow path is active. Click **Assign**.



- 3 Select **Instrument** in the menu.
- 4 Select **Setup Instrument Method**.
- 5 Under **Needle selection**, select either **Right Needle** or **Left Needle** (depending on your bypass capillary).

The **Instrument Setup** dialog box shows the following settings:

- Injection:** Injection volume: 5.00 μ L. Needle selection: **Left Needle**.
- Needle Wash:** Standard Wash.
- Stop Time:** (As Pump/No Limit) 1.00 min. (Off) 1.00 min.
- Sampling Speed:** Draw Speed: 100.0 μ L/min. Eject Speed: 400.0 μ L/min. Wait Time After Draw: 1.2 s.
- Needle Height Position:** Offset: 0.0 mm. Use Vial/Vial Bottom Sensing.

NOTE

The hardware configuration must match the software configuration to avoid harm to the instrument.

The information in this document also applies to Infinity II modules.

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