Install optional outlet valves

Instructions

Scope

Instructions how to install:

ÄKTA™ avant 25	ÄKTA avant 150	ÄKTA pure 25	ÄKTA pure 150
Outlet valve V9-O2 (28957238)	Outlet valve V9H-O2 (28979332)	Outlet valve V9-O kit (29012261)	Outlet valve V9H-O kit (29050949)
Outlet valve V9-O3 (28957240)	Outlet valve V9H-O3 (28979337)	Outlet valve V9-Os kit (29011356)	Outlet valve V9H-Os kit (29090694)

Description

Introduction

When using the ÄKTA avant standard configuration with one Outlet valve, 10 outlet positions are available. To increase the number of outlets, one or two extra Outlet valves can be connected, adding up to a total of 21 or 32 outlet positions. This optional configuration is convenient when collecting a number of large fractions outside the Fraction collector.

In ÄKTA pure the instrument can be configured with Outlet valve **V9-O** or **V9H-O**, with Outlet valve **V9-Os** or **V9H-Os** or, without any installed outlet valve.

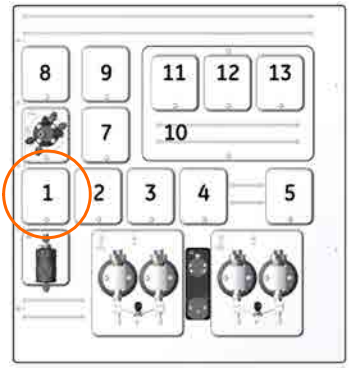
Location

ÄKTA avant

It is recommended to install the extra outlet valves in the middle and in the lower positions. The illustration below shows the recommended positions.

ÄKTA pure

A module can be placed anywhere in the ÄKTA pure cabinet. Its function is determined by the node ID. However, to achieve a good flow path most modules have a dedicated location in the cabinet. The dedicated location for the outlet valves and, if applicable, any constraints are described in the table below. Each location is marked with a number, which can be seen in the picture below.



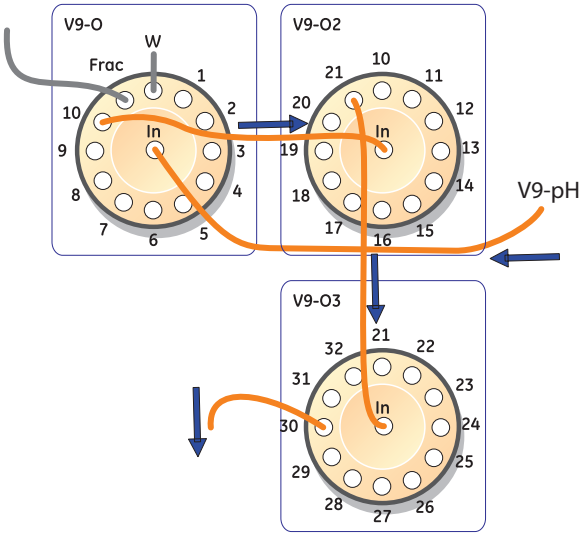
Module	Recommended location	Constraints
Outlet valve V9-Os or V9H-Os	1	Can not be used at the same time as Outlet valve V9-O or V9H-O.
Outlet valve V9-O or V9H-O	1	Can not be used at the same time as Outlet valve V9-Os or V9H-Os.

Flow path

ÄKTA avant

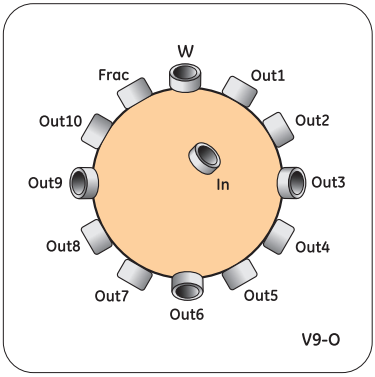
The tubing from the pH monitor is connected to the **In** port of the Outlet valve (**V9-O** or **V9H-O**). The **Out 10** port of the Outlet valve (**V9-O** or **V9H-O**) is connected to the **In** port of the extra Outlet valve (**V9-O2** or **V9H-O2**). The **Out 21** port of the first extra Outlet valve is connected to the **In** port of the second extra Outlet valve.

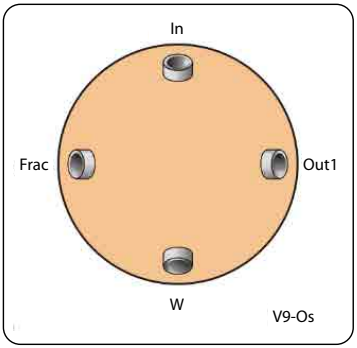
The illustration below shows the flow path with two extra Outlet valves installed on ÄKTA avant 25.



ÄKTA pure

The tubing from the module upstream of the outlet valve is connected to the In port of Outlet valve **V9-O** or **V9H-O** or Outlet valve **V9-Os** or **V9H-Os**.





Installation

Introduction

Optional modules are easy to install in the instrument. The existing module or dummy module is removed with a Torx T20 screwdriver and the cable is disconnected. The cable is then connected to the optional module, which is subsequently inserted into the instrument. The newly installed module is then added to the ***System properties*** in UNICORN™.

Node ID

All of the available optional modules are preconfigured to give the desired function. However, the function of a module can be changed by changing its Node ID. Node ID is a unit number designation that is used by the instrument to distinguish between several units of the same type.

In a troubleshooting situation it may be useful to check a module's Node ID.

Note: *The function of a module is defined by its Node ID, not by its physical position.*

Node ID for Outlet valves

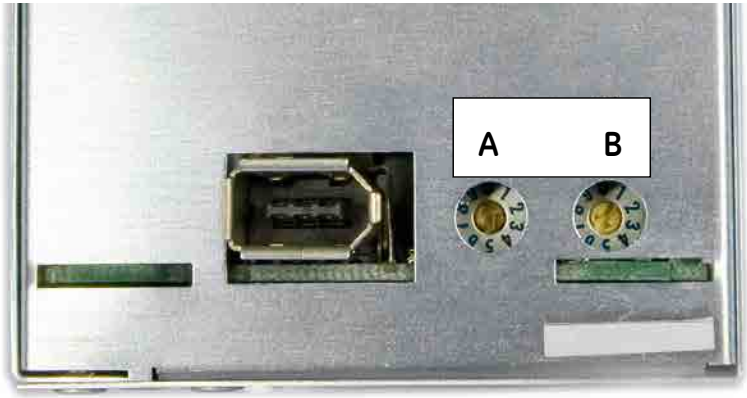
The table below lists Node ID for the optional outlet valves used in ÄKTA avant and ÄKTA pure.

Module	Label	Node ID
Outlet valve V9-O or V9H-O	**V9-O** or **V9H-O**	8
Outlet valve V9-O2 or V9H-O2	**V9-O2** or **V9H-O2**	9
Outlet valve V9-O3 or V9H-O3	**V9-O3** or **V9H-O3**	10
Outlet valve V9-Os or V9H-Os	**V9-Os** or **V9H-Os**	19

Check/change Node ID

The Node ID is set by positioning the arrows of the two rotating switches at the back of the valve. Use a screw driver to set the arrows of the switches to the desired number.

Step	Action
1	Remove the existing or dummy module from the instrument according to the hardware installation instruction below.
2	• The first rotating switch, labeled **A** sets the tens. • The second switch, labeled **B** sets the units. • Example: for Node ID **19**, the **A** switch is set to **1** and the **B** switch to **9**.



3	Check the Node ID and compare it with the listed Node IDs in the table above.
4	Install the outlet valve in the instrument.

Hardware installation of a module

The instruction below describes how to install a module in the instrument.

Note: *The illustrations show the principle how to install an optional module. The position of the module on the instrument and the used type of module will depend on the module being installed.*

CAUTION

Disconnect power. Always switch off power to the ÄKTA instrument before replacing any of its components, unless stated otherwise in the user documentation.

Step	Action
1	Disconnect power from the instrument by switching off the instrument **Power** switch.
2	Loosen the connectors and remove the tubing from the existing module. ***Note:*** *This step does not apply for a dummy module.*
3	Loosen the module with a Torx T20 screwdriver.

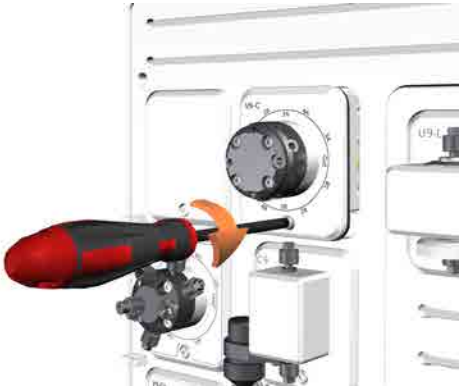
Step	Action
4	Remove the module.

5	Disconnect the cable and secure it in the slit.

6	Connect the cable to the module to be installed.

Step	Action
7	Insert the module.

8	Fasten it with a Torx T20 screwdriver.

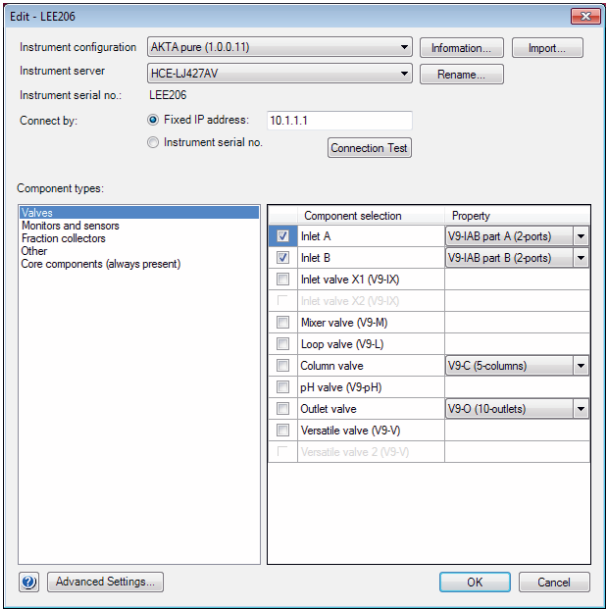


Note: *A warning message is displayed at start up if a module has been installed in the instrument but not added to the current system configuration in UNICORN.*

Software configuration

When a new module has been installed, the ***System properties*** for the system has to be updated in UNICORN. The system will restart automatically when the configuration has been changed and the system can be reconnected.

Follow the instructions below to update the system in UNICORN.

Step	Action
1	• In the ***Administration*** module, choose ***Tools*** →***System Properties*** or click the ***System Properties*** icon to open the dialog. *Result:* The ***System Properties*** dialog is displayed. • Select the system of interest in the ***System Properties*** dialog. • Click the ***Edit*** button. ***Note:*** *Only active systems can be edited.* *Result:* The ***Edit*** dialog is displayed. 

Step	Action
2	• Select ***Valves*** from the ***Component types*** list. *Result:* All available valves are shown in the ***Component selection*** list. • Click the ***Outlet valve*** checkbox. • Select the appropriate outlet valve ***Property***. ***Note:*** *Instrument modules are referred to as* ***Components*** *in UNICORN*.
3	Click the ***OK*** button to apply the changes.

Check/Set delay volume

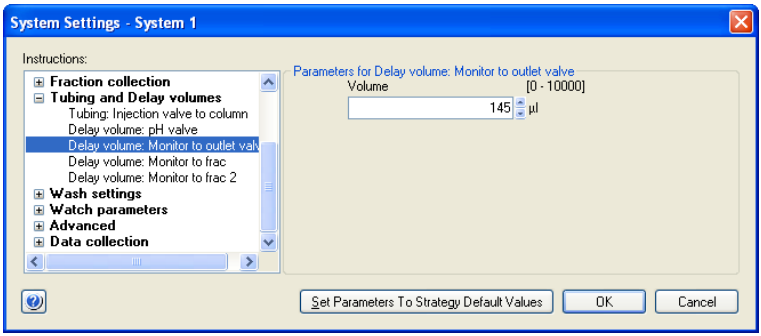
When a module has been installed after the UV monitor in the flow path, the delay volume has to be adjusted in the ***System Settings*** dialog in UNICORN, to make sure that the collected fractions correspond to the fractions indicated in the chromatogram.

Delay volumes can be set for the options ***Monitor to outlet valve***, ***Monitor to frac***, ***Monitor to frac 2***, and ***pH valve***. Depending on the system configuration used, different delay volume options will be available for selection in the ***System Settings*** dialog. The delay volume has to be set for all displayed options.

Delay volumes for ÄKTA pure modules and standard tubing configurations are found in the *ÄKTA pure System Handbook*.

Follow the instructions below to check/set the delay volumes:

Step	Action
1	In the ***System Control*** module, choose ***System*** →***Connect to Systems*** or click the ***Connect to Systems*** icon. *Result:* The ***Connect to Systems*** dialog opens.
2	• Select a system. • Select ***Control*** mode. • Click ***OK***. *Result:* The selected instrument can now be controlled by the software.

Step	Action
3	When the system is in state ***Ready***, select ***System*** →***Settings***. *Result:* The ***System Settings*** dialog is displayed. 
4	• Select ***Tubing and Delay Volumes*** and select the delay volume option of interest. • Check the delay volume in the ***Volume*** field and enter a new value if necessary. • Click ***OK***.

Connect tubing

The tables below show recommended connectors and tubing.

ÄKTA avant 25

Connection between...	Tubing label	Tubing	Connector	Tubing length (mm)
standard Outlet valve and first extra Outlet valve	**10**	PEEK, o.d. 1/16", i.d. 0.50 mm (orange)	Fingertight connector 1/16"	220
first extra Outlet valve and second extra Outlet valve	**11**			220

ÄKTA avant 150

Connection between...	Tubing label	Tubing	Connector	Tubing length (mm)
standard Outlet valve and first extra Outlet valve	**10**	PEEK, o.d. 1/16", i.d. 1 mm (beige)	Tubing connector 5/16" + Ferrule 1/16"	220
first extra Outlet valve and second extra Outlet valve	**11**			220

ÄKTA pure 25

Connection between...	Tubing label	Tubing	Connector	Tubing length (mm)
Flow restrictor and Outlet valve	**9**	PEEK, o.d. 1/16", i.d. 0.50 mm (orange)	Fingertight connector 1/16"	135
pH valve and Outlet valve	**9pH**			160

Note: *If no Outlet valve is installed, remove the Union F/F between tubing* **9** *and tubing* **W**. *Connect tubing* **9** *to the* **In** *port on the Outlet valve and the waste tubing* **W** *to the* **W** *port on the Outlet valve.*

ÄKTA pure 150

Connection between...	Tubing label	Tubing	Connector	Tubing length (mm)
Flow restrictor and Outlet valve	**9**	PEEK, o.d. 1/16", i.d. 0.75 mm (green)	**V9H-Os**: Fingertight connector 1/16" **V9H-O**: Tubing connector 5/16" + Ferrule 1/16"	135
pH valve and Outlet valve	**9pH**			160

Note: *If no Outlet valve is installed, remove the Union F/F between tubing* **9** *and tubing* **W**. *Connect tubing* **9** *to the* **In** *port on the Outlet valve and the waste tubing* **W** *to the* **W** *port on the Outlet valve.*

Note: *To install* **V9H-O**, *replace fingertight connector 1/16" with tubing connector 5/16" and ferrule 1/16" on tubing* **9**/**9pH**, **frac** *and* **W**.

Outlet tubing

Instrument	Description	Tubing label	Tubing	Tubing length (mm)
ÄKTA avant 25	Outlets from Outlet valve	**Out1** - **Out32**	ETFE, o.d. 1/16", i.d. 1 mm	1000
ÄKTA avant 150	Outlets from Outlet valve	**Out1** - **Out32**	ETFE, o.d. 1/8", i.d. 1.6 mm	1000
ÄKTA pure 25	Outlets from Outlet valve	**Out1** - **Out10**	ETFE, o.d. 1/16", i.d. 1 mm	1500
ÄKTA pure 150	Outlets from Outlet valve	**Out1** - **Out10**	ETFE, o.d. 1/8", i.d. 1.6 mm	1500

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