Install Conductivity Monitor C9n and C9M

Instructions

1 Scope

Instructions on how to install a Conductivity monitor C9n (29011363) or a Conductivity monitor C9M (29298326).

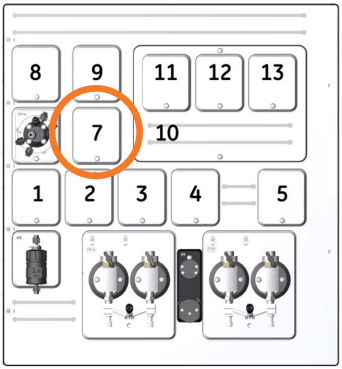
2 Description

Introduction

The conductivity monitor continuously measures the conductivity of buffers and sample solutions. For ÄKTA™ avant extended system control it is possible to have two conductivity monitors in the flow path.

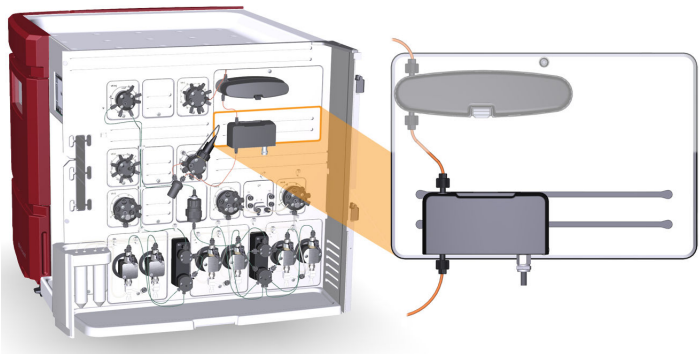
Location in ÄKTA pure

Position 7 in the illustration below is the recommended position for the conductivity monitor when used in a standard configuration placed after the UV flow cell in the flow path.



Location in ÄKTA avant

ÄKTA avant has one conductivity monitor as standard placed in a different design on the UV monitor module.



A second conductivity monitor in ÄKTA avant

In more advanced ÄKTA avant system configurations it is possible to use two conductivity monitors. The second could for example be placed before the column for extended gradient control or on a sample inlet line for control of ionic strength in the samples. Then the recommended position of the second conductivity monitor is dependent on column size or where the sample inlet valve is placed. The nearest empty module position should be used.

It is also possible to place the conductivity monitor in an Extension box (29110806). See Extension box instruction for installation and cable connection information.

Note: *If the second conductivity monitor is placed on the high pressure side of the column, pressure limits have to be considered. Maximum pressure limit is 5 MPa.*

3 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 the UNICORN™ software.

If an optional module is installed in an Extension Box (29110806), see Extension box instruction for installation and cable connection information.

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.

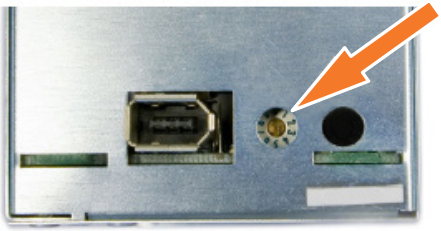
In a troubleshooting situation it may be useful to check a module's Node ID.

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

Check/change Node ID

The Node ID is set by positioning the arrow of the rotating switch at the back of the Conductivity monitor. Use a screw driver to position the arrow of the switch to the desired number.

The Node ID switch is indicated by the arrow in the illustration below.



Step	Action
1	Remove the existing or dummy module from the instrument according to the hardware installation instruction below.
2	• Set Node ID to 0 if it is the first Conductivity monitor to be installed or • set Node ID to 1 if it is the second Conductivity monitor to be installed.
3	Install the Conductivity monitor in the instrument.

Hardware installation of a module

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

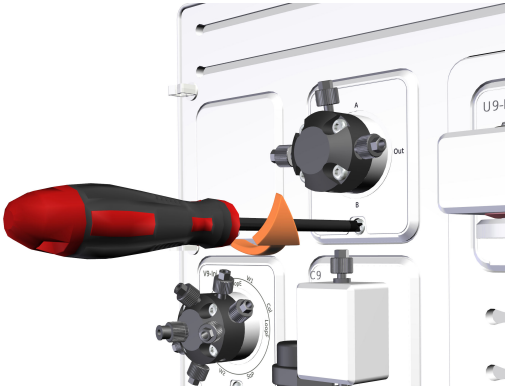
Note: *The illustrations show the principle how to install an optional module. The position of the module on the instrument and the used type of module will depend on the module being installed.*

CAUTION

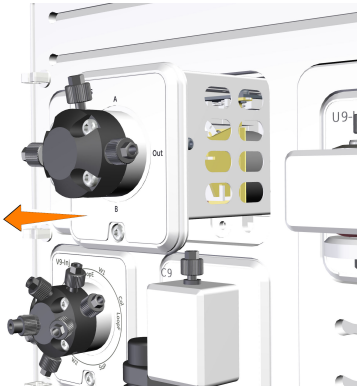
Disconnect power. Always switch off power to the ÄKTA instrument before replacing any of its components, unless stated otherwise in the user documentation.

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.*

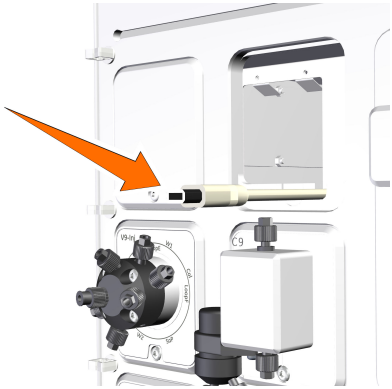
Step	Action
3	Loosen the module with a Torx T20 screwdriver.



4	Remove the module.

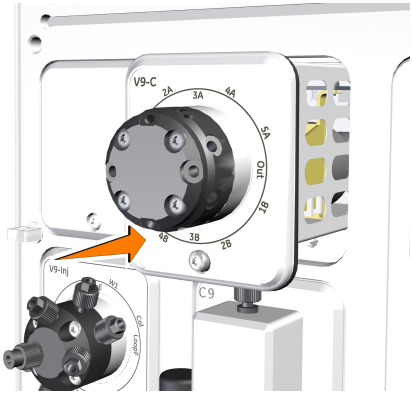


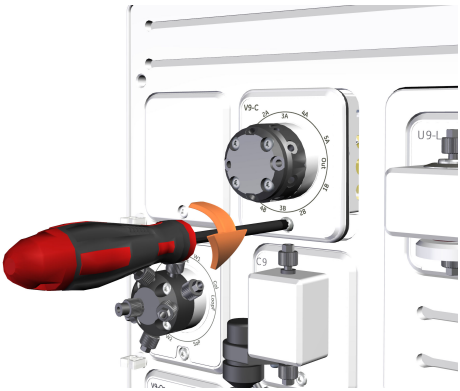
Step	Action
5	Disconnect the cable and secure it in the slit.



6	Connect the cable to the module to be installed.

7	Insert the module.



Step	Action
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*** have to be updated in UNICORN.

Follow the instructions below to update the system in UNICORN. Update UNICORN before the instrument is powered on.

The menu options in the instruction are not identical for ÄKTA pure and ÄKTA avant, but it is the same principle in both systems.

Step	Action
1	• On the ***Tools*** menu in the ***Administration*** module, click ***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 ***Edit***. ***Note:*** *Only active systems can be edited.* *Result:* The ***Edit*** dialog is displayed.
2	Select ***Monitors and sensors*** from the ***Component types*** list. *Result:* All available monitors and sensors are shown in the ***Component selection*** list. • Click the ***Conductivity monitor (C9)*** or ***Conductivity monitor 2nd (C9)*** checkbox. ***Note:*** *Instrument modules are referred to as* ***Components*** *in UNICORN.*
3	Click ***OK*** to apply the changes.

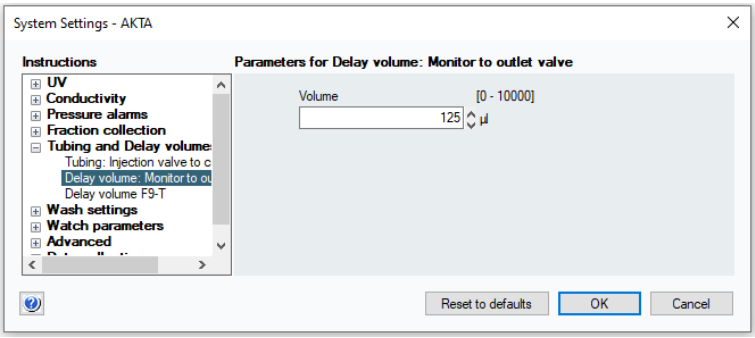
Check/Set delay volume

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 avant and ÄKTA pure modules and standard tubing configurations are found in the respective *User Manual*.

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

Step	Action
1	On the ***System*** menu in the ***System Control*** module, click ***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.
3	On the ***System*** menu, click ***Settings*** when the system is in state ***Ready***. *Result:* The ***System Settings*** dialog is displayed. The ÄKTA pure dialog is shown in the example below. 
4	• Select ***Tubing and Delay Volumes*** and select the delay volume option of interest. ***Note:*** *For ÄKTA avant **Delay Volumes** are found under **Fraction collection**.* • Check the delay volume in the ***Volume*** field and enter a new value if necessary. • Click ***OK***.

Connect tubing in ÄKTA pure

The table below shows recommended tubing and connectors for a standard configuration of the conductivity monitor in ÄKTA pure 25.

Connection	Tubing label	Tubing	Connector	Tubing length (mm)
Tubing from UV monitor U9-L or U9-M to Conductivity monitor C9n and C9M	**7**	PEEK, o.d. 1/16", i.d. 0.50 mm	Fingertight connector, 1/16"	170
Tubing from Conductivity monitor C9n and C9M to Flow restrictor	**8**	PEEK, o.d. 1/16", i.d. 0.50 mm	Fingertight connector, 1/16"	95

Note: *For ÄKTA pure micro / Micro kit for ÄKTA pure 25 refer to ÄKTA pure User Manual, 29119969 or ÄKTA pure Operating Instructions, 29022997.*

Connect tubing in ÄKTA avant

If a second conductivity monitor is connected to ÄKTA avant, use the tubing dimensions that are most suitable for the chosen location and application.

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