Replacing the Solvent A valve and Solvent B valve on ÄKTA oligosynt™

Instructions for Use

1 About this manual

Scope

This document describes how to replace the Solvent A valve (**V9H-IA1**) and Solvent B valve (**V9H-IB1**) on the ÄKTA oligosynt™ instrument with the corresponding valves **V9-IA1** and **V9-IB1**. The narrower flow path in the new valves eliminates the risk of back flow of liquids.

Read this before operating the product

All users must read the entire *Operating Instructions* before installing, operating, or maintaining the product.

Always keep the *Operating Instructions* at hand when operating the product.

Do not install, operate, or perform maintenance on the product in any other way than described in the user documentation. If you do, you may be exposed or expose others to hazards that can lead to personal injury and you may cause damage to the equipment.

Notes and tips

Note: *A note is used to indicate information that is important for trouble-free and optimal use of the product.*

Tip: *A tip contains useful information that can improve or optimize your procedures.*

Typographical conventions

Software items are identified in the text by ***bold italic*** text.

Hardware items are identified in the text by **bold** text.

Tip: *The text can include clickable hyperlinks to reference information.*

2 Location of the solvent valves

The illustration below highlights the location for the solvent valves.

3 Required tools and equipment

The following equipment is recommended for replacing the solvent valves:

- Torx T20 Screwdriver[1]
- Silicon purge tubing[1]
- Waste container with a minimum volume of 0.25 L
- Bottle with a minimum volume of 1.0 L
- Cap (without ports) for the ACN bottle

[1] Supplied in the ÄKTA oligosynt accessory box.

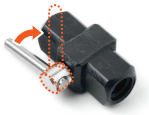
4 Purge the acetonitrile manifold

To prevent acetonitrile (ACN) leakage while replacing the solvent valves, the acetonitrile manifold and connected tubing must be purged.

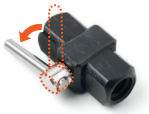
This chapter describes how to purge the acetonitrile manifold and the connected tubing.

4.1 Prepare the acetonitrile manifold for purging

Follow the steps below to prepare the acetonitrile manifold and the connected tubing for purging.

Step	Action
1	If the instrument is connected to a pressurized ACN tank, close the valve on the tank.
2	Turn the shut-off valve on the gas tubing between the ACN bottle and the gas manifold to the closed position (see image below). 
3	Slowly unscrew the cap of the ACN bottle to release the inert gas. Leave the cap unscrewed.
4	Unscrew the ACN tubing connectors from the solvent valves. **a.** Unscrew the 3/16" tubing connector of the **ACN A7** port on Solvent A valve by hand. **b.** Unscrew the 3/16" tubing connector of the **ACN B7** port on Solvent B valve by hand. *Result:* The acetonitrile in the tubing runs back into the ACN bottle.
5	Screw the ACN tubing connector back on the solvent valves. **a.** Screw on the 3/16" tubing connector of the **ACN A7** port on Solvent A valve by hand. **b.** Screw on the 3/16" tubing connector of the **ACN B7** port on Solvent B valve by hand.
6	Remove the cap with the tubing from the ACN bottle and screw it onto a new bottle with a minimum volume of 1 L. Screw the cap tight. If multiple ACN bottles are connected to the instrument, repeat this step for all ACN bottles.

Step	Action
7	If the instrument is connected to a pressurized acetonitrile tank, install or move a gas tubing to the 1 L bottle that is installed between the instrument and the pressurized acetonitrile tank.
8	Turn the shut-off valve on the gas tubing between the 1 L bottle and the gas manifold to the open position (see image below).



9	Screw on another cap on the ACN bottle.

4.2 Purge the acetonitrile manifold

Follow the steps below to purge the acetonitrile manifold and the connected tubing.

Step	Action
1	Purge the inlets of the amidite valves and Solvent B valve.

a. Open the ***System Control*** module.

b. In the ***Process Picture*** pane, one at a time, click on the valve in the table below and select the inlets to be primed.

Amidite 1 valve	Amidite 2 valve	Solvent B valve
port **ACN Z/A**	port **ACN z/a**	port **ACN B3**
port **ACN C/G**	port **ACN c/g**	-
port **ACN T/Q**	port **ACN u/q**	-
port **ACN X/Y**	port **ACN x/y**	-

c. Connect a silicon purge tubing to the purge valve of one of the pump heads. Insert the other end of the purge tubing in a waste container.

d. Open the purge valve by turning it counter-clockwise one and a half turns.

Result:
The liquid flows through the purge tubing to the waste container.

e. Close the purge valve by turning it clockwise.

f. Repeat steps b to e for each inlet as described in the table above.

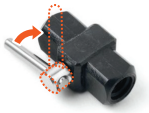
Step	Action
	g. Disconnect the purge tubing and discard its contents.
2	Stop the manual run.
3	Turn the shut-off valve on the gas tubing between the 1 L bottle and the gas manifold to the closed position (see image below).
	
4	Slowly unscrew the cap of the 1 L bottle to release the inert gas. Leave the cap unscrewed.
5	Disconnect tubing from the solvent valves. **a.** Disconnect the **AmV1**, **AmV2**, and **ACN A7** tubing from the Solvent A valve. **b.** Disconnect the **ACN B3** and the **ACN B7** tubing from the Solvent B valve.
6	Unscrew the cap with the tubing from the 1 L bottle and screw it on the ACN bottle. ***Note:*** *Do not pressurize the ACN bottle.*

5 Replace the solvent valves

This chapter describes how to replace the solvent valves on the ÄKTA oligosynt instrument.

5.1 Prepare for replacing the solvent valves

Prepare the system for replacing the solvent valves.

Step	Action
1	Exit the software and switch off the system. **a.** In UNICORN, go to ***File*** →***Exit***. **b.** Switch off the RTU by pressing the power button on the RTU. **c.** Disconnect power from the instrument by switching off the instrument power switch.
2	Turn the shut-off valve on the gas tubing between all solvent bottles and the gas manifold to the closed position (see image below). 
3	Slowly unscrew the cap of the solvent bottles to release the inert gas. Leave the caps unscrewed.
4	Unscrew all tubing connectors from the Solvent A and Solvent B valves. Move away the tubing from the front of the instrument. Collect any liquid from the oxidizer reagent tubing. ***Note:*** *Remember to unscrew the 1/8" connector and tubing from the* **Out** *port of the Solvent A valve and the Solvent B valve, respectively.*
5	Screw on the caps of all bottles. ***Note:*** *Do not pressurize the bottles.*

5.2 Replacing the solvent valves

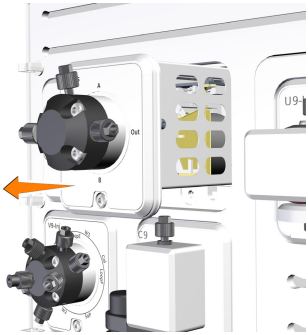
The instruction below describes how to replace the solvent valves on the instrument.

Note: *The illustrations show the principle of how to install a module. The position of the module on the instrument and the used type of module depends on the module being installed. The images are for illustrative purposes and might not represent the system delivered.*

Step	Action
1	One by one, remove the existing Solvent A valve (**V9H-IA1**) and Solvent B valve (**V9H-IB1**).

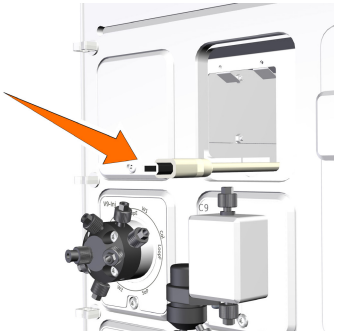
a. Loosen the solvent valve with a Torx T20 screwdriver.

b. Remove the solvent valve.



Step	Action

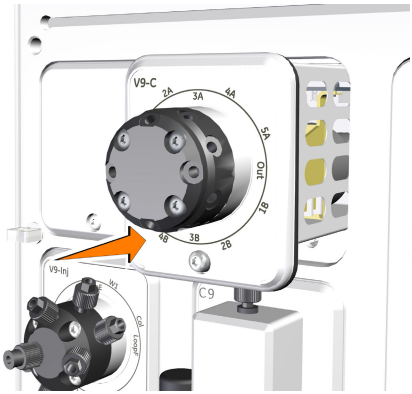
c. Disconnect the cable and secure it in the slit.



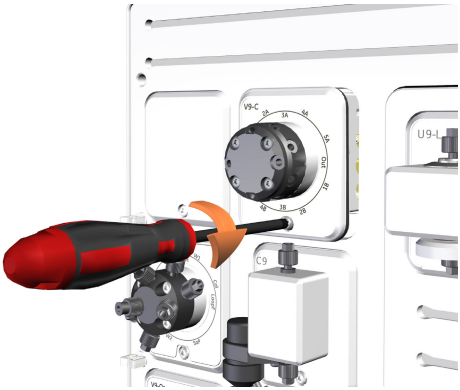
2 One by one, connect the new Solvent A valve (**V9-IA1**) and Solvent B valve (**V9-IB1**).

a. Connect the cable to the solvent valve that is to be installed.

b. Insert the new solvent valve.



Step	Action
	c. Fasten the screw on the front of the solvent valve with a Torx T20 screwdriver.



Note: *The newly installed solvent valves do not need to be added to the* ***System Properties*** *in UNICORN.*

6 Node ID

Node ID overview

All modules have a pre-configured Node ID according to their function. The Node ID is used by the instrument to distinguish between several units of the same type. The function of a module can be changed by changing its Node ID.

The Node ID of the solvent valves is set during manufacturing. In a troubleshooting situation, it can be useful to verify the Node ID of the module.

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

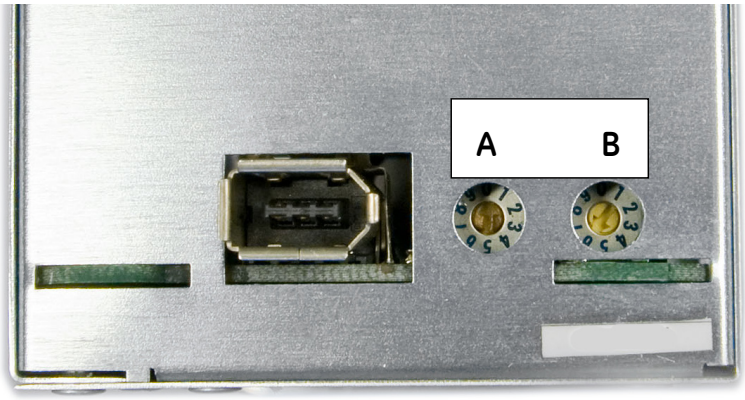
The table below lists the Node ID for the solvent valves.

Module	Label	Node ID
Solvent A valve	**Solvent A** **V9-IA1**	30
Solvent B valve	**Solvent B** **V9-IB1**	31

Set the Node ID

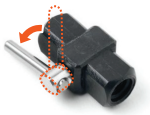
Follow the steps below to set, verify, or change the Node ID of a module.

Step	Action
1	Remove the module according to the instruction in *Replace the solvent valves, on page 8*.
2	The Node ID of a module is set by the position of an arrow on a rotating switch, at the back of the module. • the first switch, labeled **A**, sets the tens and • the second switch, labeled **B**, sets the units. Valve modules have two rotating switches, as shown in the image below: For example, to set the Node ID to **30** for a valve module, switch **A** is set to **3** and switch **B** is set to **0**.

Step	Action
	
3	Verify that the Node ID is the same as the Node IDs listed in *Node ID, on page 12*.

7 Reconnect solvent valve tubing

Follow the steps below to reconnect the tubing to the solvent valves.

Step	Action
1	Connect all tubing back to the Solvent A valve and Solvent B valve. ***Note:*** *Remember to connect the 1/8" connector and tubing to the* **Out** *port of the Solvent A valve and the Solvent B valve, respectively.*
2	Plug all unused ports with stop plugs.
3	One at a time, turn the shut-off valves on the gas tubing between all solvent bottles and the gas manifold to the open position (see image below). 
4	Start the ÄKTA oligosynt instrument and connect to UNICORN, as described in the *ÄKTA oligosynt Operating Instructions*.
5	Prime all inlets, as described in the *ÄKTA oligosynt Operating Instructions*.
6	Clean the entire flow path with ACN before the next run.

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