

eksigent™ ultraLC Systems

Software User Guide



This document is provided to customers who have purchased AB SCIEX equipment to use in the operation of such AB SCIEX equipment. This document is copyright protected and any reproduction of this document or any part of this document is strictly prohibited, except as AB SCIEX may authorize in writing.

Software that may be described in this document is furnished under a license agreement. It is against the law to copy, modify, or distribute the software on any medium, except as specifically allowed in the license agreement. Furthermore, the license agreement may prohibit the software from being disassembled, reverse engineered, or decompiled for any purpose. Warranties are as stated therein.

Portions of this document may make reference to other manufacturers and/or their products, which may contain parts whose names are registered as trademarks and/or function as trademarks of their respective owners. Any such use is intended only to designate those manufacturers' products as supplied by AB SCIEX for incorporation into its equipment and does not imply any right and/or license to use or permit others to use such manufacturers' and/or their product names as trademarks.

AB SCIEX warranties are limited to those express warranties provided at the time of sale or license of its products and are AB SCIEX's sole and exclusive representations, warranties, and obligations. AB SCIEX makes no other warranty of any kind whatsoever, expressed or implied, including without limitation, warranties of merchantability or fitness for a particular purpose, whether arising from a statute or otherwise in law or from a course of dealing or usage of trade, all of which are expressly disclaimed, and assumes no responsibility or contingent liability, including indirect or consequential damages, for any use by the purchaser or for any adverse circumstances arising therefrom.

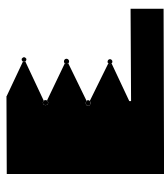
For research use only. Not for use in diagnostic procedures.

The trademarks mentioned herein are the property of AB Sciex Pte. Ltd. or their respective owners. Eksigent is a division of AB Sciex, LLC.

AB SCIEX™ is being used under license.

© 2013 AB Sciex Pte. Ltd.

Printed in Canada.



AB Sciex LLC
1201 Radio Road
Redwood City, CA
94065
USA

Revision History

Document Number	Reason for Change	Date
5017936 A	First release of <i>ekspert™ ultraLC Systems Software User Guide</i> .	March 2012
RUO-IDV-05-0872-A	Updated for <i>ekspert™ ultraLC 110, 110 HTC, 110 HTS, and 110-XL</i> systems. New template applied.	December 2013



Contents

Chapter 1 Installation Procedures	7
System Requirements	7
Connect Communication Cables	7
ultraLC 100 or 110 Systems	7
ultraLC 100-XL or 110-XL Systems	9
Install the Software	10
Chapter 2 Operating Instructions - Configuration	13
Create a Hardware Profile	13
Activate the Hardware Profile	14
Configure the ultraLC 100/110 System	15
Configure the ultraLC 100-XL/110-XL system	17
Chapter 3 Operating Instructions - LC Methods	21
Open an MS Method	21
ekspert™ ultraLC 100/110 Systems	21
ekspert ultraLC 100-XL/110-XL Systems	21
Create LC Methods	22
ekspert ultraLC 100/110 Systems	22
ekspert ultraLC 100-XL/110-XL Systems	23
Clear a Method (100/110 Systems)	23
Chapter 4 Service and Maintenance - ekspert™ ultraLC 100/110 System	25
View System Information	25
Config Menu	25
Direct Control	25
Autosampler Maintenance	27
Create a Wash Program	27
Define Custom Mix Actions (Basic)	28
Define Custom Mix Actions (Advanced)	29
Adjust Needle and Syringe Alignment	30
Perform an Initial Wash	32
Pump Maintenance	33
Configure Start Conditions	33
Set Pump Flow Rates	34
Set Pump Pressure	36
Turn the Degasser On or Off	37
Set Pump Compressibility and Compensation Factors	37
Column Oven Maintenance	38
Set the Column Oven Temperature	38
Set the Vapor Alarm Sensitivity	40
Set Up E-mail Notification	40
Reset Log Counts	41

Chapter 5 Service and Maintenance - ekspert™ ultraLC 100-XL/110-XL	
System	43
View System Information	43
View Status Information	43
Autosampler Maintenance	44
Customize the Wash Cycle	44
Set the Autosampler Temperature	44
Perform an Initial Wash	45
Pump Maintenance	46
Change Pump Pressure Display Units	46
Change Pump Solvent Names	46
Select Pump Solvents	47
Set Pump Flow Rates	48
Set Pump Pressure	48
Turn the Degasser On or Off	49
Set Pump Compressibility and Compensation Factors	50
Column Oven Maintenance	51
Set the Column Oven Temperature	51
Set the Vapor Alarm Sensitivity	53

The ekspert™ ultraLC 110 and ultraLC 110-XL software are add-ons for the Analyst® software. The ultraLC software is compatible with Analyst software version 1.6 or greater.

The ekspert ultraLC system includes:

- An autosampler (ultraLC 100/110, 100-XL/110-XL, 110, 110 HTC or 110 HTS)
- Two pumps, ultraLC 100 or 110
- An optional column oven, ultraLC 100 or 110

The software package contains a DVD with the ultraLC drivers for the Analyst software.



Note: To manage the ultraLC 110 HTC or HTS system, use the Analyst software.

System Requirements

Refer to the Analyst software *Installation Guide* for the minimum requirements for the version of Analyst being used. In addition to the Analyst software requirements, the following are required by the ultraLC software:

- Minimum screen resolution of 1024 × 768
- Windows Regional and Language settings set as follows:
 - **Language:** English
 - **Decimal Symbol:** “.” (English period)

Connect Communication Cables

Prerequisite Procedures

- Turn off the LC system components.



Note: Devices not in use should be removed completely from the chain.

ultraLC 100 or 110 Systems



Note: Use the long (3 m, 6 ft) serial cable for the connection to the computer.

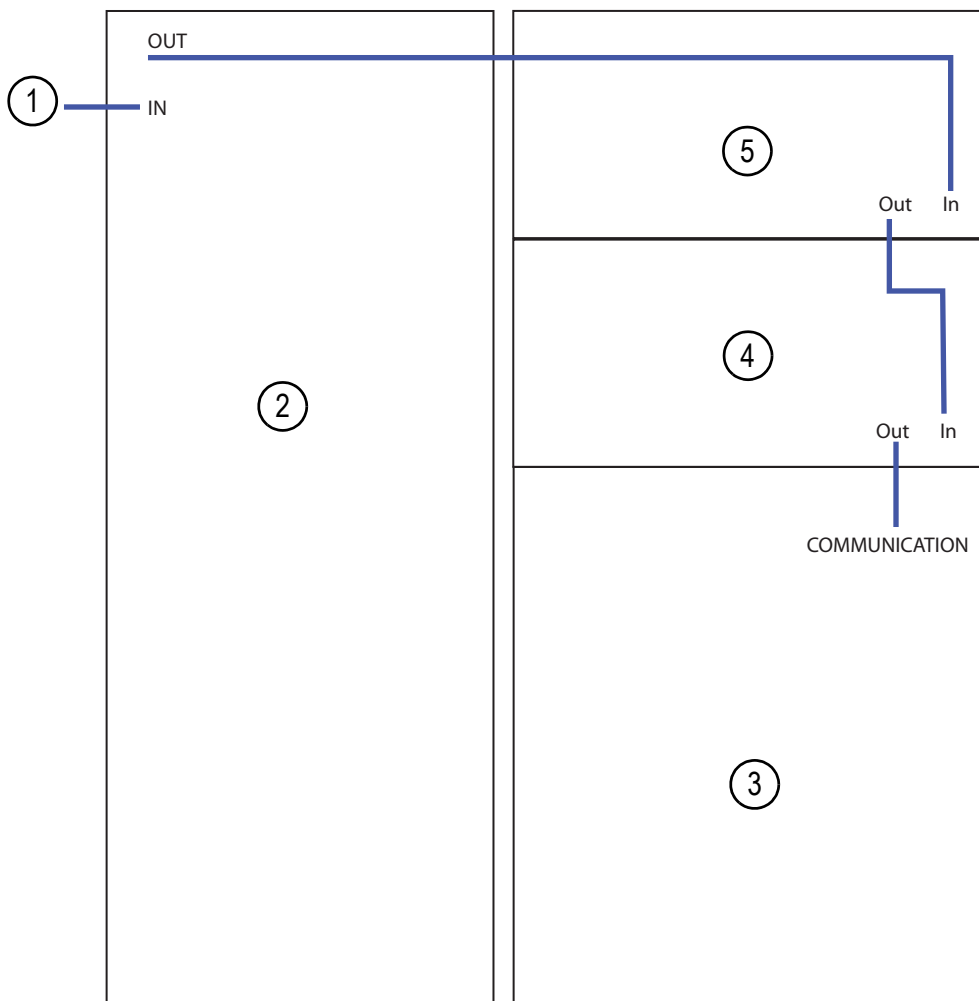
Table 1-1 Without a Column Oven

From	To
COMMUNICATION port on the autosampler	Multilink Out port on pump B
Multilink In port on pump B	Multilink Out port on pump A
Multilink In port on pump A	COM1 port on computer

Table 1-2 With a Column Oven

From	To
COMMUNICATION port on the autosampler	Multilink Out port on pump B
Multilink In port on pump B	Multilink Out port on pump A
Multilink In port on pump A	COMMUNICATION OUT port on column oven
COMMUNICATION IN port on column oven	COM1 port on computer

Figure 1-1 Serial Connections



Item	Description	Item	Description
1	To computer	4	Pump B
2	Column oven	5	Pump A
3	Autosampler		

ultraLC 100-XL or 110-XL Systems



Note: Use the long (3 m, 6 ft) serial cable for the connection to the computer.

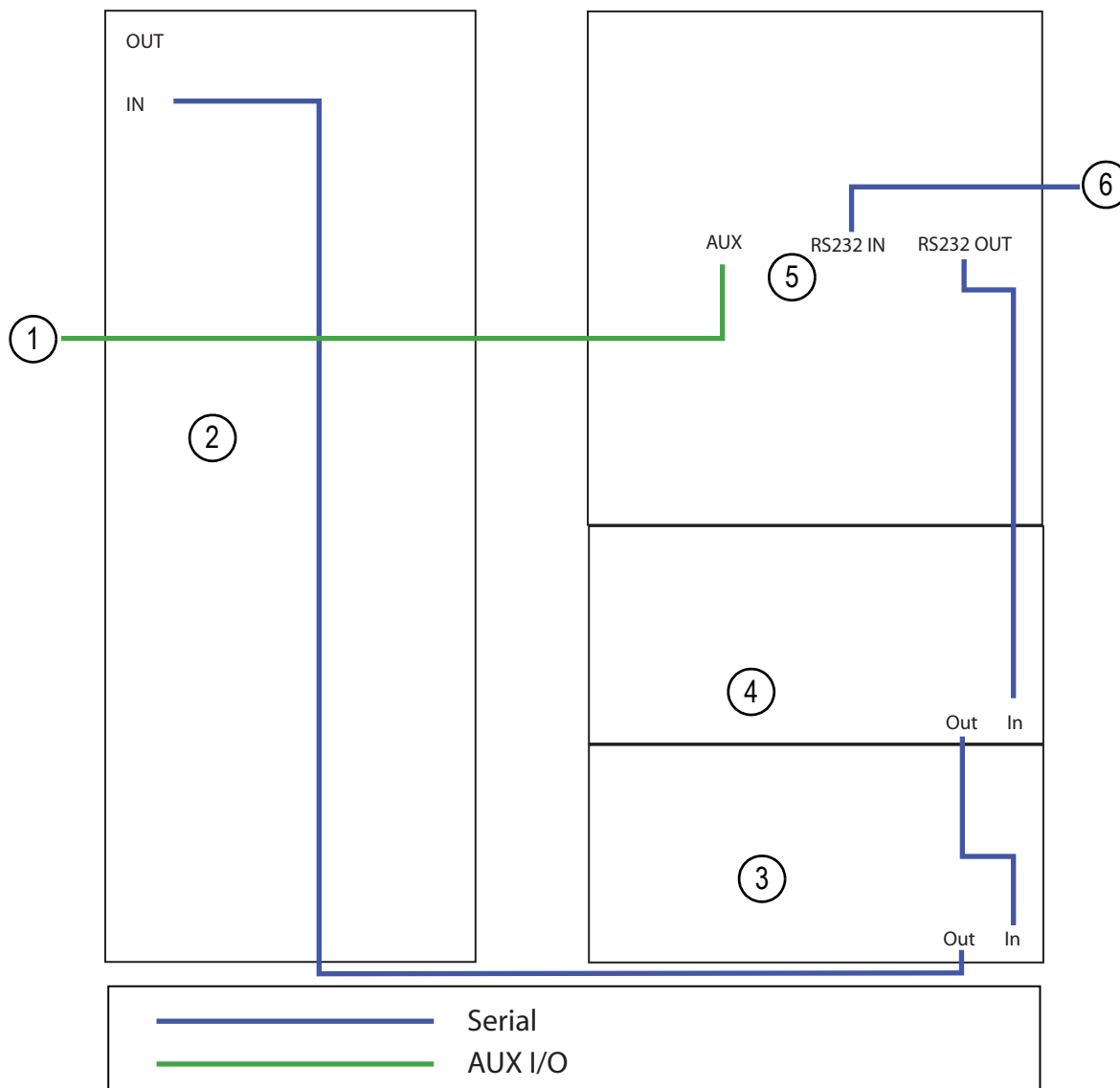
Table 1-3 Without a Column Oven

From	To
Multilink In port on pump B	Multilink Out port on pump A
Multilink In port on pump A	RS232 OUT port on the autosampler
RS232 IN port on the autosampler	COM1 port on the computer

Table 1-4 With a Column Oven

From	To
COMMUNICATION IN port on column oven	Multilink Out port on pump B
Multilink In port on pump B	Multilink Out port on pump A
Multilink In port on pump A	RS232 OUT port on the autosampler
RS232 IN port on the autosampler	COM1 port on the computer

Figure 1-2 Communication Connections



Item	Description	Item	Description
1	To mass spectrometer	4	Pump A
2	Column oven	5	Autosampler
3	Pump B	6	To computer

Install the Software

1. Insert the DVD in the DVD drive.
2. Click **Start > Run**.
3. Type <drive>\Setup\setup.exe in the **Run** window.
4. Click **OK**.

5. Follow the on-screen instructions.



Note: We recommend that you use the installation default settings.



The ekspert™ ultraLC software for Analyst® software allows you to configure the system and create LC methods.

Update the system configuration after installing a loop, needle, or syringe with a different volume than that previously installed.

Create a Hardware Profile

After the ultraLC software has been installed, create a hardware profile to control the ultraLC systems with the Analyst software.

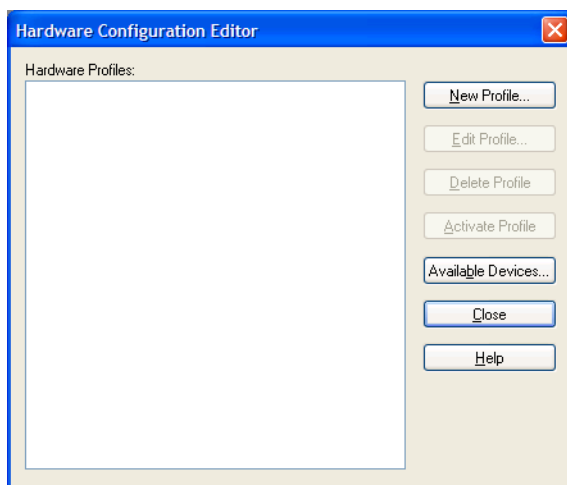
1. Open the Analyst software.
2. Verify that the correct ultraLC software is in the **Companion Software** list in the Navigation bar. If it is not, then install it. Refer to [Installation Procedures on page 7](#).

Table 2-1 Companion Software

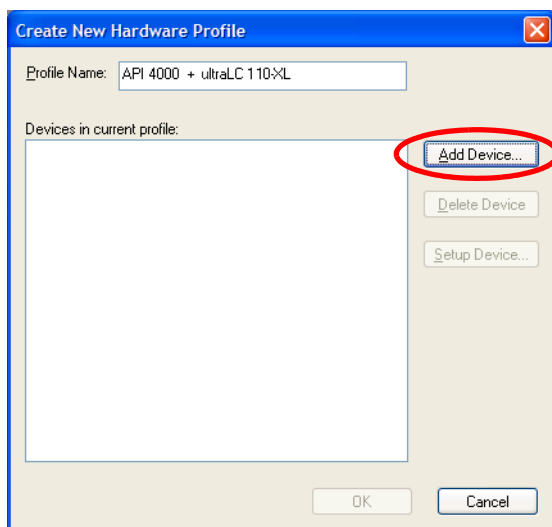
Autosampler	Companion Software
ultraLC 100 or 110	ekspert ultraLC 110
ultraLC 100-XL or 110-XL	ekspert ultraLC 110-XL

3. In the Navigation bar, double-click **Hardware Configuration**.
The **Hardware Configuration Editor** dialog opens.

Figure 2-1 Analyst Hardware Configuration Editor Dialog



4. Click **New Profile**.
The **Create New Hardware Profile** dialog opens.
5. In the **Profile Name** field, type a profile name.

Figure 2-2 Create New Hardware Profile Dialog: Add Device Button

6. Click **Add Device**.
7. Add the mass spectrometer to the hardware profile, and then set up the mass spectrometer. Refer to the *Getting Started Guide* for the Analyst software or the *System User Guide* for the mass spectrometer.
8. Repeat [step 6](#) and [step 7](#) for all other devices to be used in the hardware profile, except for the ultraLC system.
9. Click **Add Device**.
10. In the **Device Type** field, click **Software Application**.
11. In the list of **Devices**, click **Software Application (not configured)**.
12. Click **OK**.
13. Click the software application that was added to the **Create New Hardware Profile** dialog and then click **Setup Device**.
14. In the **Software Application Settings** dialog, select the driver for the ultraLC system being used.
15. Click **OK** to close the **Software Application Settings** dialog.
16. Click **OK** to close the **Create New Hardware Profile** dialog.

Activate the Hardware Profile

1. Click the new profile.
2. Click **Activate Profile**.



Note: The first time an ultraLC 110-XL hardware profile is activated, the Configuration screen opens. Refer to [Configure the ultraLC 100-XL/110-XL system on page 17](#).

When the profile is activated, a green check mark is shown beside the profile name.

Configure the ultraLC 100/110 System



Note: Help for the ekspert ultraLC software is available from each dialog. To open the Help, click **Help** or press **F1** on any dialog. Or click **Help > ekspert ultraLC 110 help**.

1. In the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110**.

The **ekspert ultraLC 110 for Analyst** window opens.

2. Click **Config**.

The **Configuration** dialog opens.

3. Double-click **ekspert ultraLC 110**.

Figure 2-3 Configuration Dialog: Settings Tab

4. Type information in the fields described in [Table 2-2](#).

Table 2-2 Configuration Fields

Field	Description
Communication	
COM Port	The serial port to which the system is connected.
Autosampler	
Loop Volume (ul)	The volume of the loop, as shown on the label attached to the loop. The standard shipping configuration is 20.

Table 2-2 Configuration Fields (Continued)

Field	Description
Needle Volume (ul)	The volume of the needle, as shown on the label attached to the sample needle tubing. The standard shipping configuration is 15.
Syringe Volume (ul)	The volume of the syringe, as shown on the label attached to the syringe tubing. The standard shipping configuration is 250.
Sample cooling	Indicator that shows whether the cooling option is installed.
Autosampler wash solvent selector (SSV)	Indicator that shows whether the wash solvent selector valve is installed.
Integrated stream selector (ISS)	Indicator that shows whether the optional integrated stream selector is installed.
Gradient Pump	
Gradient Pump	The pump used for the gradient. Select ekspert 110 Pump .
Pump solvent selector	The pump solvent selector is standard on the ultraLC 110 system. Select this option.
Ignore degasser error	Indicator that shows whether the user is notified when a degasser error occurs. Do not select this option.
Column Oven	
Column oven	Indicator that shows whether the column oven will be used.
Column selector	Indicator that shows whether the optional column selector valve is installed on the column oven.
Peltier cooling	Indicator that shows whether the cooling option is installed on the column oven.

- Click **Auto detect**.



Tip! **Auto detect** automatically sets the options for the ultraLC 110 system.

- Click **OK**.
- Click **System Info**.
- Click a module.
The **Info** dialog opens.
- Verify the proper functioning of the module.
- Click **Close**.
- Click **OK**. The configuration settings are automatically saved in the hardware configuration of the Analyst software.

New LC methods can now be created. Refer to [Operating Instructions - LC Methods on page 21](#).

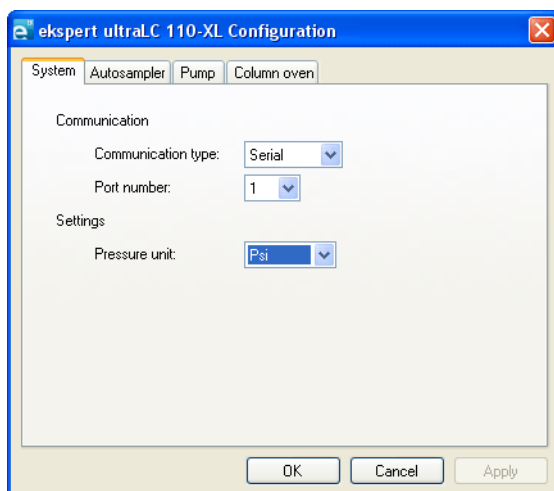
Configure the ultraLC 100-XL/110-XL system



Note: When the hardware profile is activated, the LC system icon is shown in the system tray. This icon remains yellow until the system is properly configured.

1. In the Analyst software, in the status bar, click the LC system icon, and then click **Configuration**.

Figure 2-4 Configuration Dialog: System Tab



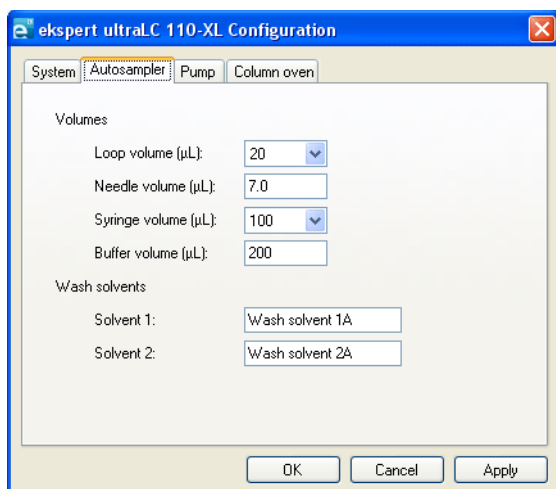
2. Type information in the fields described in [Table 2-3](#).

Table 2-3 Configuration Fields

Field	Description
Communication	A list of communication types. Select Serial .
Port number	The serial port to which the serial cable is connected.
Settings	The units used for pressure displays.

3. Click the **Autosampler** tab.

Figure 2-5 ekspert ultraLC 110-XL Configuration Dialog: Autosampler Tab

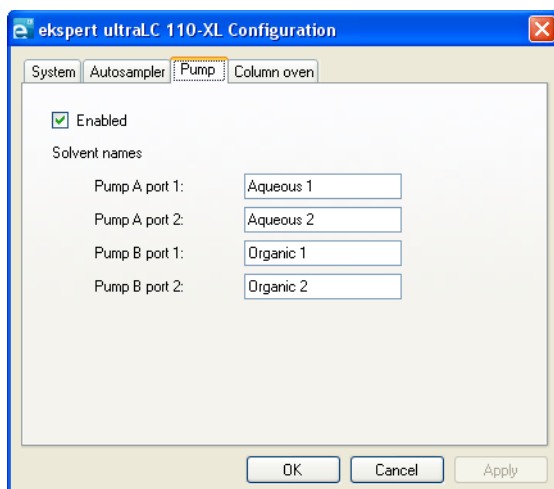


4. Type information in the fields described in [Table 2-2](#).

Table 2-4 Autosampler Tab

Field	Description
Volumes	
Loop volume (µL)	The volume of the loop, as shown on the label attached to the loop. The standard shipping configuration is 20.
Needle volume (µL)	The volume of the needle, as shown on the label attached to needle. The standard shipping configuration is 7.0.
Syringe volume (µL)	The volume of the syringe, as shown on the label attached to syringe. The standard shipping configuration is 100.
Buffer volume (µL)	The volume of the buffer tubing, as shown on the label attached to the buffer tubing. The standard shipping configuration is 200.
Wash solvents	
Solvent 1	A descriptive name for wash solvent 1. This name is used during method creation.
Solvent 2	A descriptive name for wash solvent 2. This name is used during method creation.

5. Click the **Pump** tab.

Figure 2-6 ekspert ultraLC 110-XL Configuration Dialog: Pump Tab

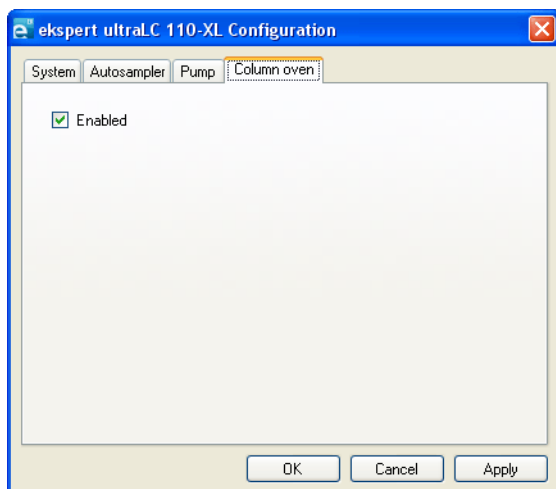
6. Type information in the fields described in [Table 2-5](#).

Table 2-5 Pump Tab

Field	Description
Enabled	Select this check box to enable the pumps.
Pressure unit	The units to be used to show pressure in the user interface.
Solvent names	
Pump A port 1	A descriptive name for mobile phase A1. This name is used during method creation.
Pump A port 2	A descriptive name for mobile phase A2. This name is used during method creation.
Pump B port 1	A descriptive name for mobile phase B1. This name is used during method creation.
Pump B port 2	A descriptive name for mobile phase B2. This name is used during method creation.

- Click the **Column oven** tab.

Figure 2-7 ekspert ultraLC 110-XL Configuration Dialog: Column Oven Tab



Note: If the column selection valve is installed, then the Column Selector field is shown. If the cooling option is installed, the **Peltier Cooling** field is shown.

- Type information in the fields described in [Table 2-6](#).

Table 2-6 Column Oven Tab

Field	Description
Enabled	Select this check box if the system includes the optional column oven.
Column Selector	Select this check box to enable the column selection valve, if installed.
Peltier Cooling	Select this check box to enable the cooling options, if installed.

- Click **OK**.

LC acquisition methods are based on existing mass spectrometer (MS) methods. Before creating an LC method, open an acquisition method (*.dam) file. LC method parameters are added to the acquisition method file and then saved in the Analyst® software methods folder.

Open an MS Method

To create an MS acquisition method, refer to the *System User Guide* or the Analyst software *Getting Started Guide*.

ekspert™ ultraLC 100/110 Systems

Prerequisite Procedures

- [Activate the Hardware Profile on page 14](#)
- [Configure the ultraLC 100/110 System on page 15](#)

1. In the Analyst software, in the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110**.

The **ekspert ultraLC 110 for Analyst** window opens.

2. Click **Methods**.

The middle pane contains a list of acquisition methods.



Note: If the ekspert ultraLC 110 software icon is shown before an acquisition method name, then the method contains LC method parameters.

3. Select a method.
4. Click **Open Method**.

The **ekspert ultraLC 110 Method Editor** window opens.

ekspert ultraLC 100-XL/110-XL Systems

Prerequisite Procedures

- [Activate the Hardware Profile on page 14](#)
- [Configure the ultraLC 100-XL/110-XL system on page 17](#)

1. In the Analyst software, in the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110-XL**.

The **ekspert ultraLC 110-XL** window opens.

2. Click **File > Open**.
3. Select a method.
4. Click **Open**.

Create LC Methods

ekspert ultraLC 100/110 Systems

Prerequisite Procedures

- [Activate the Hardware Profile on page 14](#)
- [Configure the ultraLC 100/110 System on page 15](#)
- [Open an MS Method on page 21](#). Make sure that the **Synchronization Mode** is set to **No Sync**.

1. In the Analyst software, in the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110**.
2. Click **Methods**.
The **Methods** dialog opens and shows a list of methods.
3. Select the MS method.
4. Click **Open Method**.
The **ekspert ultraLC 110 Method Editor** opens.
5. Set the method parameters. For more information, refer to the online Help for the ekspert™ ultraLC 110 software.



Note: Make sure that the LC gradient entered is not longer than the MS acquisition method. A longer LC method might cause synchronization issues during acquisition.

6. Click **Save**.



Tip! To confirm that the changes have been applied to the method, open it in the Analyst software and then select the ekspert ultraLC 110 link in the method. The changes made in the ekspert ultraLC 110 software are shown.

ekspert ultraLC 100-XL/110-XL Systems

Prerequisite Procedures

- [Activate the Hardware Profile on page 14](#)
- [Configure the ultraLC 100-XL/110-XL system on page 17](#)
- [Open an MS Method on page 21](#). Make sure that the **Synchronization Mode** is set to **LC Sync**.

1. In the Analyst software, in the Navigation bar, under **Companion Software**, click **ekspert ultraLC 110-XL**.
2. Click **File > Open**.
3. Select the MS method.
4. Click **Open**.
The **ekspert ultraLC 110-XL** dialog opens.
5. Select the ekspert ultraLC 110-XL devices and then set the method parameters.



Tip! If the autosampler is equipped with a barcode scanner, then the tray barcode information can be embedded in the acquired data file and shown in reports created with the Analyst software.

6. Click **File > Save**.



Tip! To confirm that the changes have been applied to the method, open it in the Analyst software and then select the ekspert ultraLC 110 link in the method. The changes made in the ekspert ultraLC 110 software are shown.

Clear a Method (100/110 Systems)

Use this procedure to remove LC parameters from an acquisition method. The MS parameters remain unchanged.

1. In the **ekspert ultraLC 110 for Analyst** window, select a method.
2. Click **Clear Method**.
A warning is shown.
3. Click **Yes** to remove the LC parameters.

When the LC parameters have been removed, the middle pane of the Method window shows the method name without the ekspert ultraLC icon.





Note: Help for the ekspert ultraLC software is available from each dialog. To open the Help, click **Help** or press **F1** on any dialog. Or click **Help > ekspert ultraLC 110 Help**.



Note: Troubleshooting procedures for all ekspert ultraLC 110 software modules are described in the online help topics. In addition, warnings and error messages offer help, or contain links to online help topics.

View System Information

Config Menu

1. In the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110**.
2. Click **Config**.
3. Click **System Info**
4. Click the device.

Direct Control

1. In the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110**.
2. Click **System > Direct Control**.

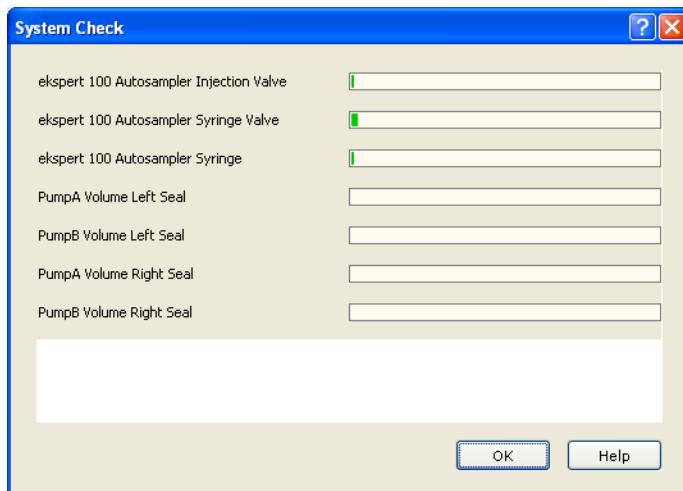
Figure 4-1 Direct Control Dialog



3. To view information about the system, click the **System Info** tab.
4. To view the status of various replaceable parts, click **Check**.

The **System Check** dialog opens. The used life of the part is shown in green.

Figure 4-2 System Check Dialog



Autosampler Maintenance

For information about configuring the ultraLC 100/110 system, refer to [Configure the ultraLC 100/110 System on page 15](#).

Create a Wash Program

Prerequisite Procedures

- Open an LC method. Refer to [ekspert ultraLC 100/110 Systems on page 22](#).

1. Click **Autosampler**.
2. Click **Wash Setup**.
3. (Optional) To view the **Valve wash** check box and the **Gradient pump fraction %** field, click **Advanced**.

Figure 4-3 Method Editor: Wash Setup Tab (Autosampler)

ekspert ultraLC 110 Method Editor - ultraLC 110.dam

Injection Setup Wash Setup Timed Events Setup Mix Setup

Use Wash

Wash solvent 1: 40% ACN 0.2% FA Insert

Wash solvent 2: 40% ACN 40% MeOH 5% IPA 15% water Append

Wash solvent 2B: Wash solvent 2B Delete

Wash solvent 2C: Wash solvent 2C Advanced

Wash solvent 2D: Wash solvent 2D

Wash solvent 2E: Wash solvent 2E

Wash solvent 2F: Wash solvent 2F

Enter ports and wash volume:

	Solvent	Volume (ul)	Valve wash
01	40% ACN 0.2% FA	700	<input type="checkbox"/>
02	40% ACN 40% MeOH 5% IPA 15% water	700	<input type="checkbox"/>
03	40% ACN 40% MeOH 5% IPA 15% water	700	<input type="checkbox"/>
04	40% ACN 0.2% FA	700	<input type="checkbox"/>
05			
06			
07			
08			
09			

Valve wash

Gradient pump fraction %B: 10

Save as Save Cancel Help

4. Select the **Use wash** check box.
5. In the **Wash solvent** fields, select the wash solvents to be used.
6. Click **Save**.



Tip! Click **Advanced** to enable Valve washing and to change the pump gradient.

Define Custom Mix Actions (Basic)

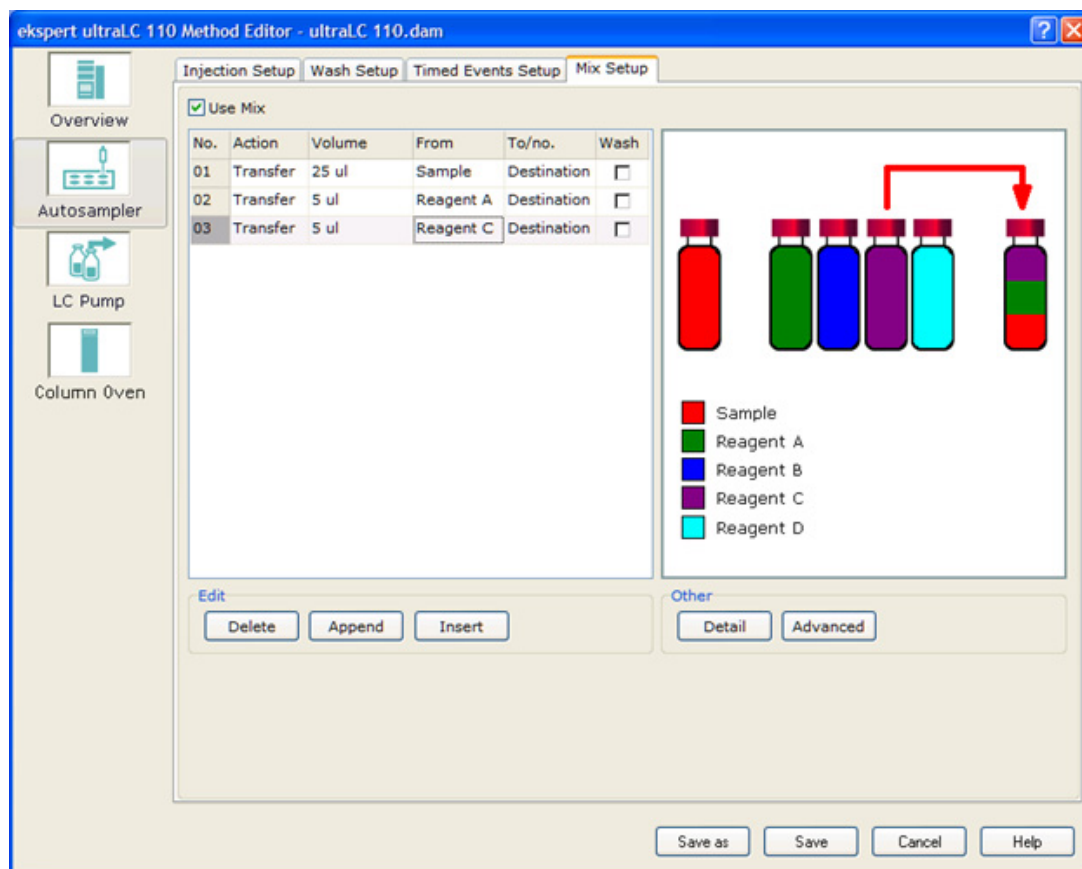
Prerequisite Procedures

- Open an LC method. Refer to [ekspert ultraLC 100/110 Systems on page 22](#).

Use **Mix Setup** to define custom mix actions. For example, mix reagents prior to injection.

1. Click **Autosampler**.
2. Click **Mix Setup**.

Figure 4-4 Autosampler Dialog: Mix Setup Tab



3. Select the **Use Mix** check box.
4. Type the mix requirements in the **Actions**, **Volumes**, **From**, **To/no.** fields.
5. To use wash, select the **Wash** checkbox.
6. Click **Save**.

Define Custom Mix Actions (Advanced)

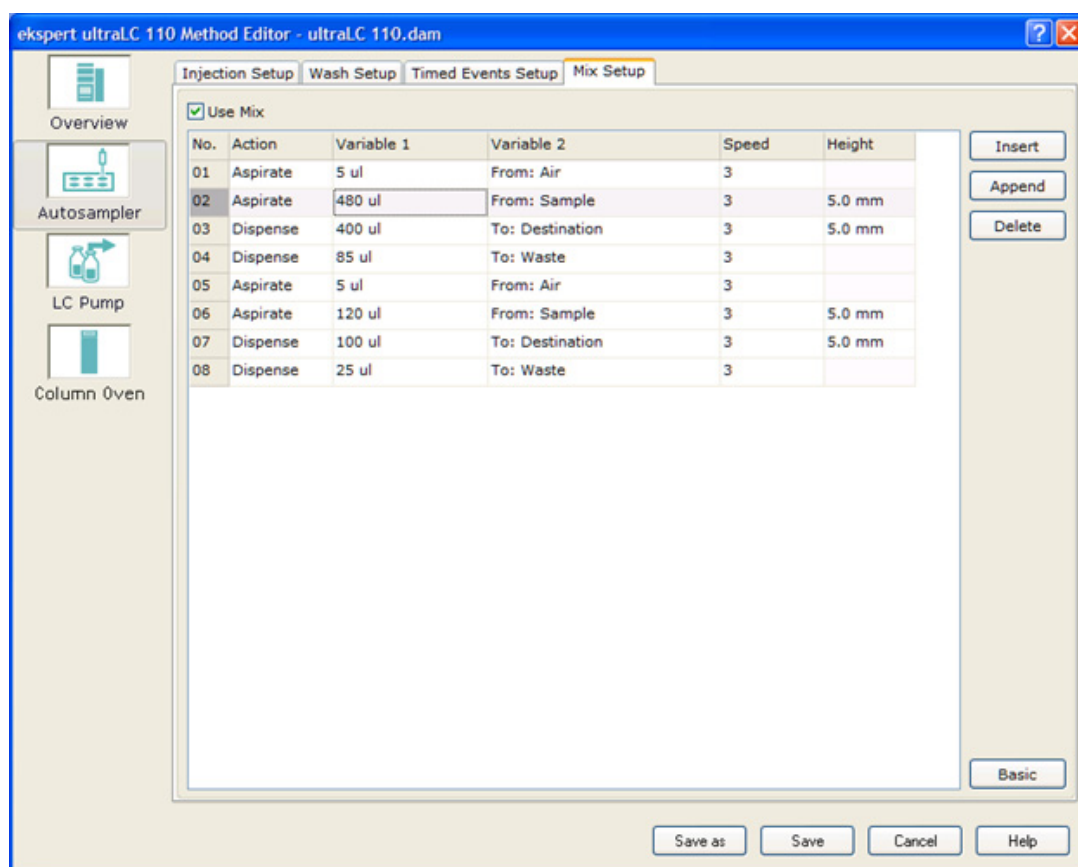
Use advanced custom mix actions to programmatically enter the custom mixing program.

Prerequisite Procedures

- Open an LC method. Refer to [ekspert ultraLC 100/110 Systems on page 22](#).

1. Click **Autosampler**.
2. Click **Mix Setup**.
3. Select the **Use Mix** checkbox.
4. Click **Advanced**.

Figure 4-5 Autosampler Dialog: Mix Setup Tab - Advanced



5. Type the mix requirements in the **Actions**, **Variable 1**, **Variable 2**, **Speed**, and **Height** fields.
6. Click **Save**.



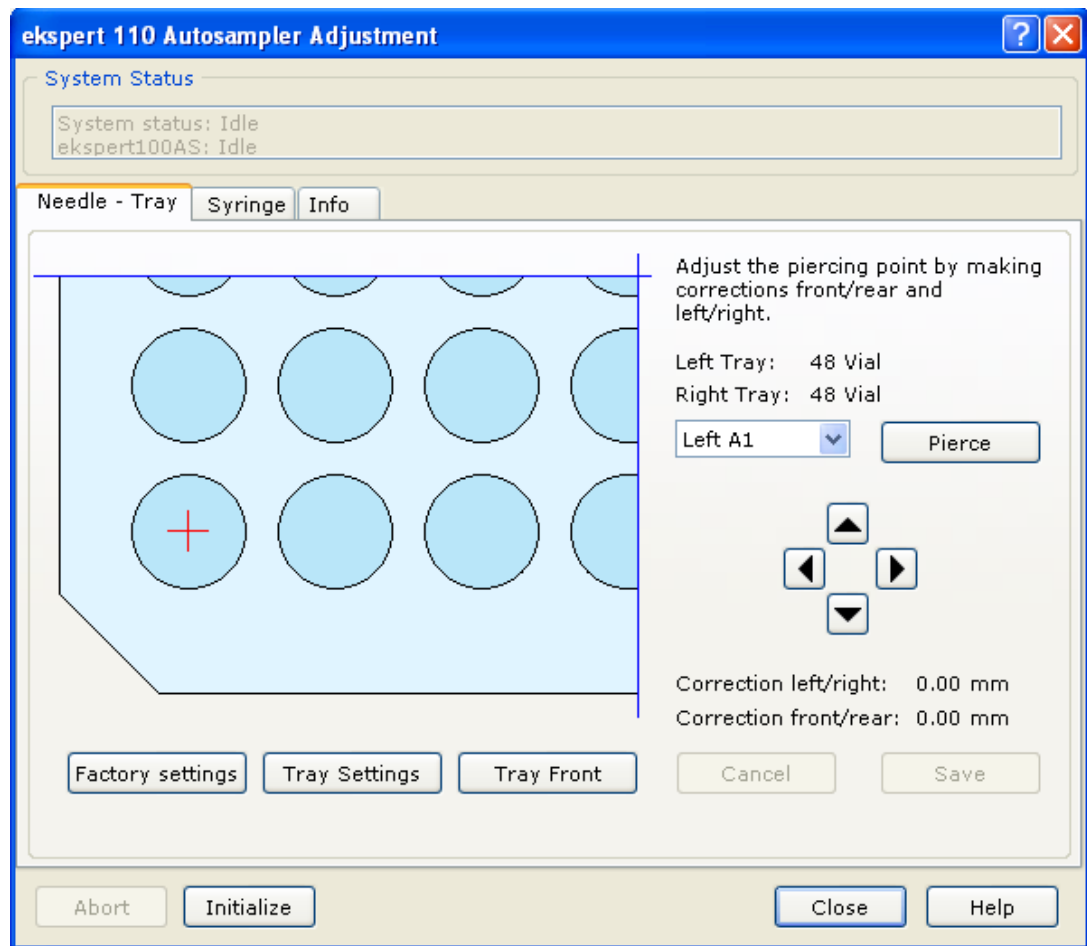
Note: Changes are lost during switching between Basic and Advanced view. Do not switch the view after configuring a method.

Adjust Needle and Syringe Alignment

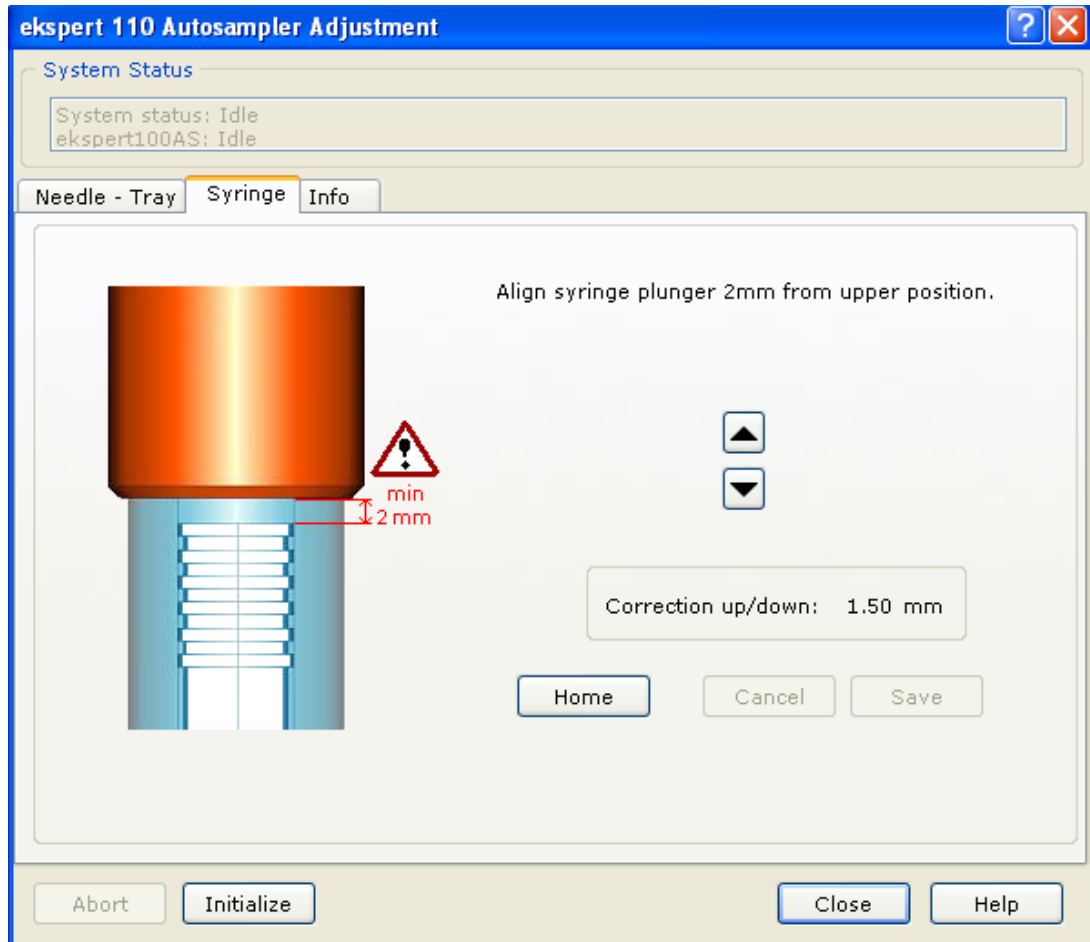
Follow this procedure to adjust the position of the piercing needle and the depth of the syringe.

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Adjustment > ekspert 110 Autosampler Adjustment**.
2. To align the sample needle, follow the instructions on the **Needle - Tray** tab.

Figure 4-6 ultraLC 110 Autosampler Adjustment Dialog: Needle - Tray Tab



3. To align the syringe, follow the instructions on the **Syringe** tab.

Figure 4-7 ultraLC 110 Autosampler Adjustment Dialog: Syringe Tab

4. Click **Close**.

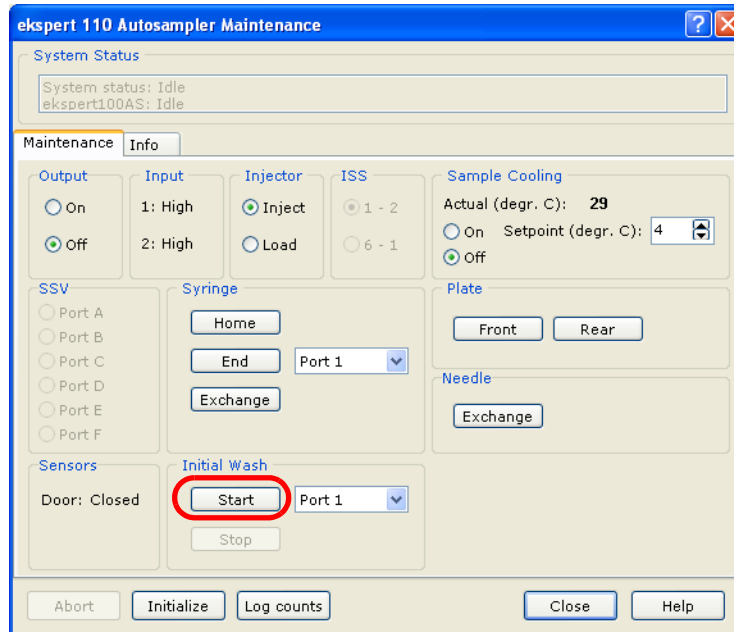
Perform an Initial Wash

After installing the sample needle or air needle, you might need to perform an initial wash to fill the syringe tubing.

Perform a Manual Wash

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Maintenance > ekspert 110 Autosampler Maintenance**.

Figure 4-8 ekspert 110 Autosampler Maintenance Dialog



2. In the **Initial wash** group, click **Start** to refill all of the tubing connected to the syringe valve.
The tubing fills for two minutes.
3. Repeat [step 2](#) at least two more times, to fill the needle with wash solvent.
After installing the syringe or dispenser, continue with [Remove Air Bubbles from the Syringe on page 32](#).

Remove Air Bubbles from the Syringe

- If bubbles persist, repeat the initial wash while gently tapping the syringe until there is no air in the syringe.



Tip! If a bubble persists at the tip of the plunger, remove the syringe plunger to release the air bubble, and then reinstall the plunger.

Pump Maintenance

Configure Start Conditions

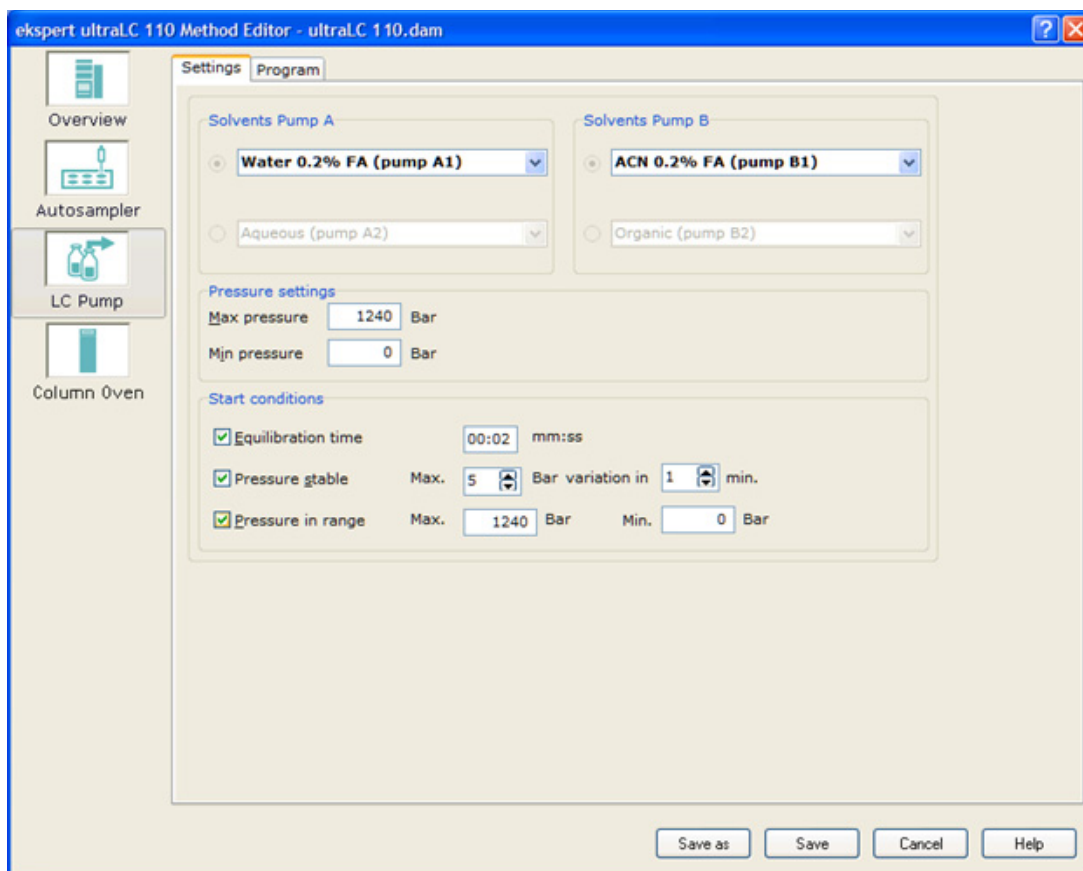
The ekspert ultraLC 110 system can be configured with pre-set conditions. Acquisition does not begin until conditions are met.

Prerequisite Procedures

- Open an LC method. Refer to [ekspert ultraLC 100/110 Systems on page 22](#).

1. Click **LC Pump**.
2. Click **Settings**.

Figure 4-9 Method Editor: Settings Tab (Pump)



Field	Description
Pressure stable	If selected, the injection routine does not begin until the pressure has stabilized according to the set conditions.
Pressure in range	If selected, the injection routine does not begin unless the pump pressure is in a preset range.

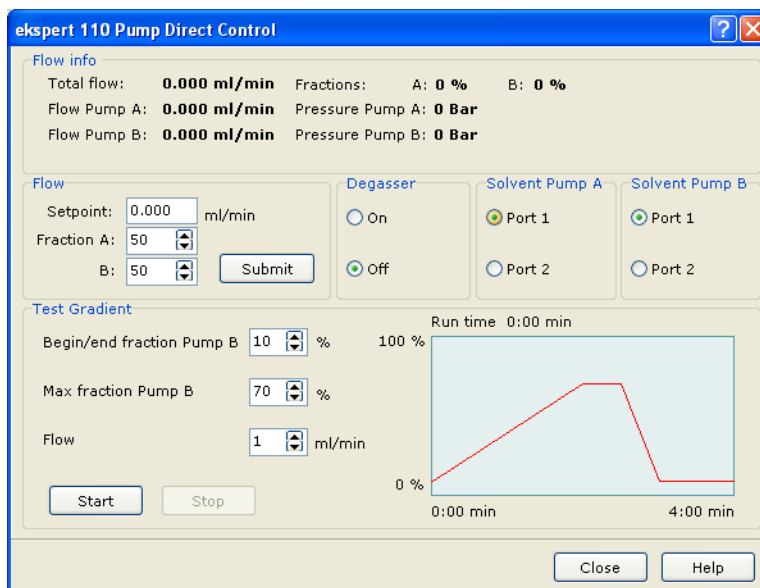
3. Click **Save** to save the method, or click **Save As** and save the method with a new name.

Set Pump Flow Rates

Direct Control Dialog

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Direct Control**.
2. Click a pump.

Figure 4-10 ekspert 110 Pump Direct Control Dialog



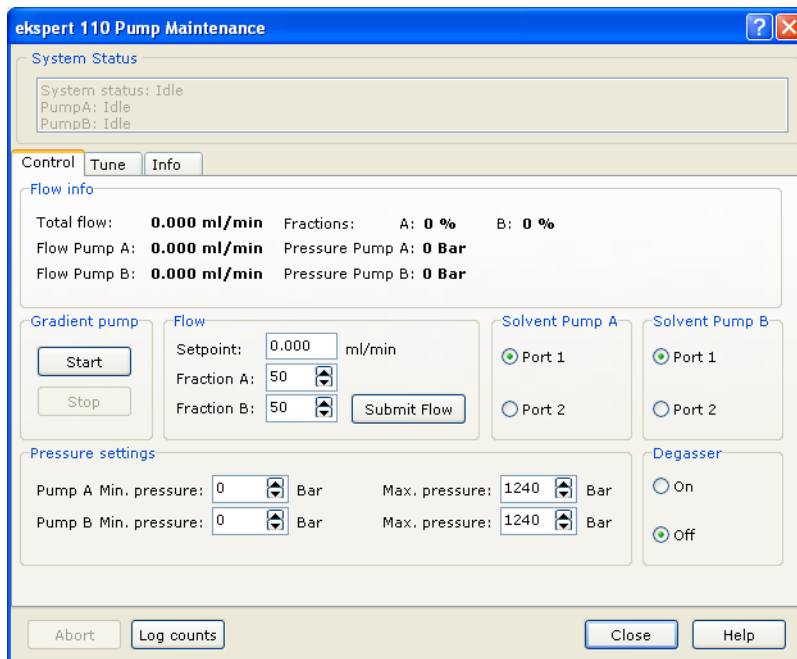
3. Type new flow values in the **Flow**, **Fraction A**, and **Fraction B** fields.
4. Click **Submit**.

Caution: Potential System Damage: If the pumps are turned on manually, make sure they are turned off when no longer required. The pumps must not be operated dry.

Maintenance Dialog

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Maintenance > ekspert 110 Pump Maintenance**.

Figure 4-11 ultraLC 110 Pump Maintenance Dialog: Control Tab



Note: Real-time pump information is shown on the left side of the dialog.

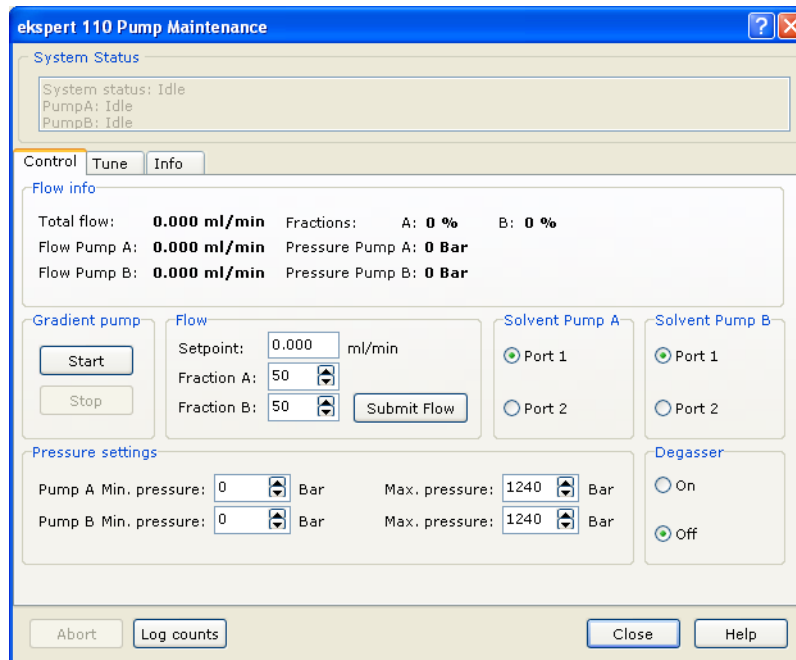
2. Type new flow values in the **Flow**, **Fraction A**, and **Fraction B** fields.
3. Click **Submit Flow**.

Caution: Potential System Damage: If the pumps are turned on manually, make sure they are turned off when no longer required. The pumps must not be operated dry.

Set Pump Pressure

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Maintenance > ekspert 110 Pump Maintenance**.

Figure 4-12 ultraLC 110 Pump Maintenance Dialog: Control Tab



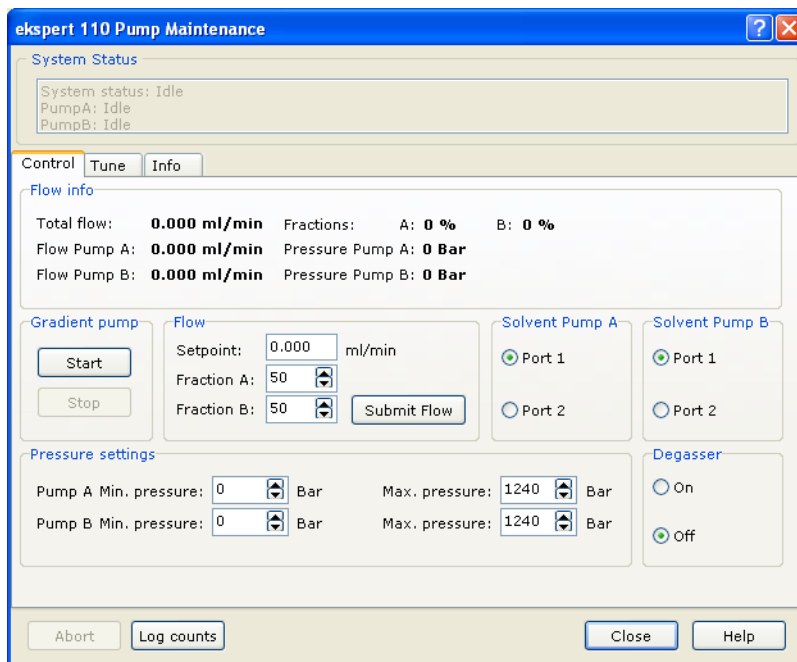
Note: Real-time pump information is shown on the left side of the dialog.

2. Set the minimum and maximum pressures for pump A and pump B.
3. Click **Close**.

Turn the Degasser On or Off

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Maintenance > ekspert 110 Pump Maintenance**.

Figure 4-13 ultraLC 110 Pump Maintenance Dialog: Control Tab



2. To turn the degasser on, click **On**.
3. To turn the degasser off, click **Off**.
4. Click **Close**.

Set Pump Compressibility and Compensation Factors

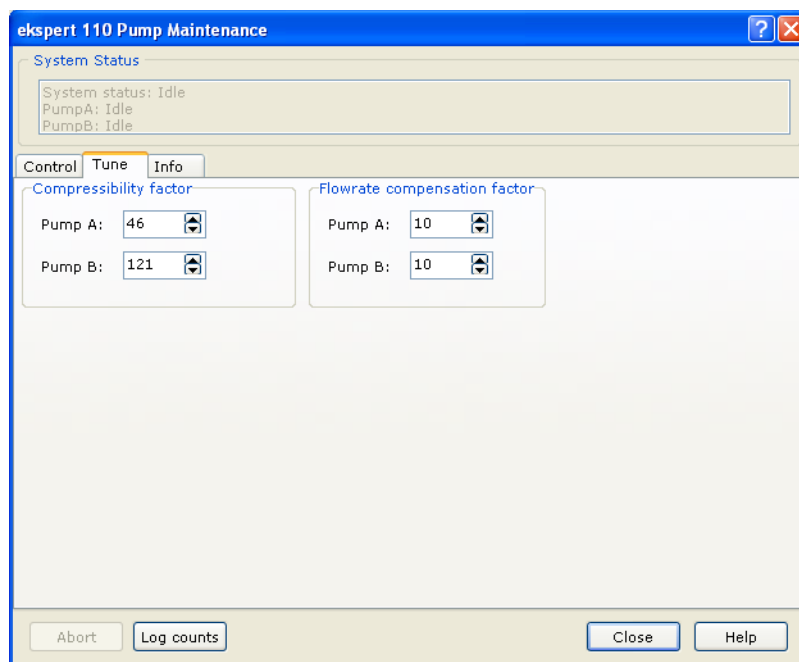
Pump A and Pump B are shipped with a compressibility factor of 121 (MeOH). Compressibility factors must be entered before the pumps are run for the first time and when solvents are changed.

Table 4-1 Compressibility Settings

Solvent	Setting
Water	46
Methanol	121
Acetonitrile	115
Hexane	167
THF	97

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Maintenance > ekspert 110 Pump Maintenance**.

Figure 4-14 ultraLC 110 Pump Maintenance Dialog: Tune Tab



2. Click **Tune**.
3. In the **Compressibility factor** group, select the compressibility for pump A and pump B.
4. In the **Flowrate compensation factor** group, select the compensation factor for pump A and pump B.
5. Click **Close**.

Column Oven Maintenance

Set the Column Oven Temperature

When the column oven temperature is set in a method, it takes effect when the method starts running and ends when the method ends. The procedures in this section set a column oven temperature that remains in effect when no method is running.

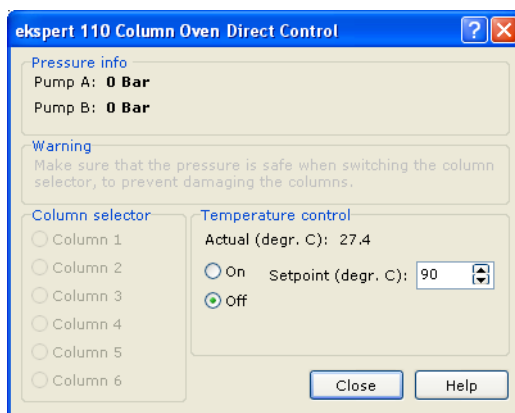
1. In the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110**.
2. Click **System > Direct Control**.

Figure 4-15 Direct Control Dialog



3. Click the column oven.

Figure 4-16 ekspert 110 Column Oven Direct Control Dialog



4. To turn the column oven off, click **Off**.
5. To turn the column oven on, click **On**.
6. To set the column oven temperature:
 - a. In the **Set point** field, select a set point.

- b. Click **Set**.

Set the Vapor Alarm Sensitivity

A vapor sensor is installed in the oven compartment of the column oven to signal leakage in the oven compartment. Set the vapor alarm sensitivity to Low, Standard, or High.

- A High setting generates a vapor alarm at low vapor concentrations in the column oven.
- A Low setting activates the alarm at much higher vapor levels.

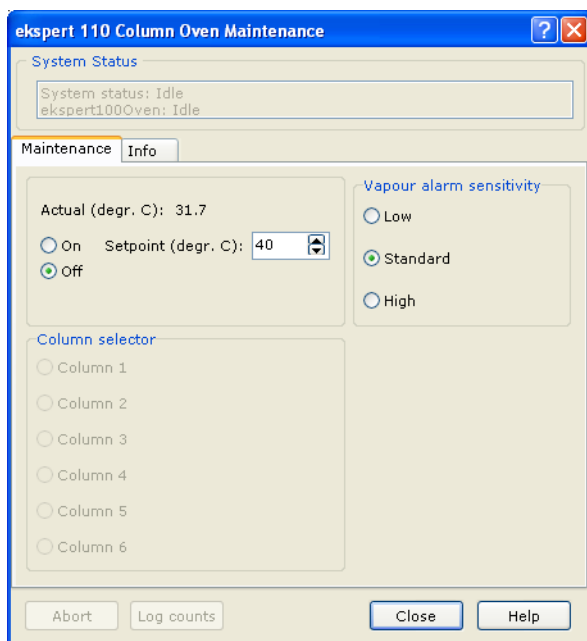
A volatile eluent will cause a vapor alarm sooner. The higher the temperature in the oven compartment, the sooner the vapor alarm will detect amounts of eluent leaking into the oven.



Note: The vapor sensor is not active in the first 2 minutes after power up.

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Maintenance > ekspert 110 Column Oven Maintenance**.
2. Click the column oven.

Figure 4-17 ultraLC 110 Column Oven Maintenance Dialog



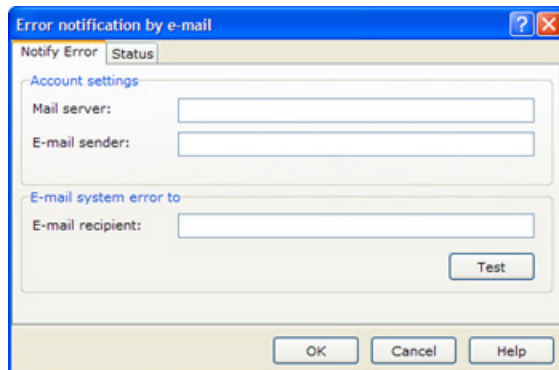
3. Click the desired value for **Vapor alarm sensitivity**.

Set Up E-mail Notification

System errors can be reported automatically by e-mail to specific recipients. System errors sent by e-mail contain: the message **System stopped because of an error**, a short description of the error, and an error number.

1. In the Navigation bar, under **Companion Software**, double-click **ekspert ultraLC 110**.
2. Click **Tools > Email Settings**. The **Error notification by e-mail** dialog opens.

Figure 4-18 Error notification by email Dialog



3. In the **Mail server** field, type the mail server address for outgoing mail.
4. In the **E-mail sender** field, type the address of the e-mail sender.
5. In the **E-mail recipient** field, type the e-mail address or the recipient of error notifications.
6. Click **Test** to send a test email to the recipient.
7. Click **OK**.

Reset Log Counts

The Log Counts dialog lists the moving parts in the component that require periodic maintenance (such as the syringe, syringe valve, and injection valve). For each of these parts, it records the number of movements of the part. When one of these parts is replaced, reset the counters.

1. In the **ekspert ultraLC 110 for Analyst** window, click **System > Maintenance > ekspert 110 Autosampler Maintenance** or **ekspert 110 Pump Maintenance**.
The Maintenance dialog is shown.
2. Click **Log Counts**.
3. Click **Reset**.
4. Click **OK**.





Note: Tooltips are available in the dialogs of the ekspert™ ultraLC 110-XL software.

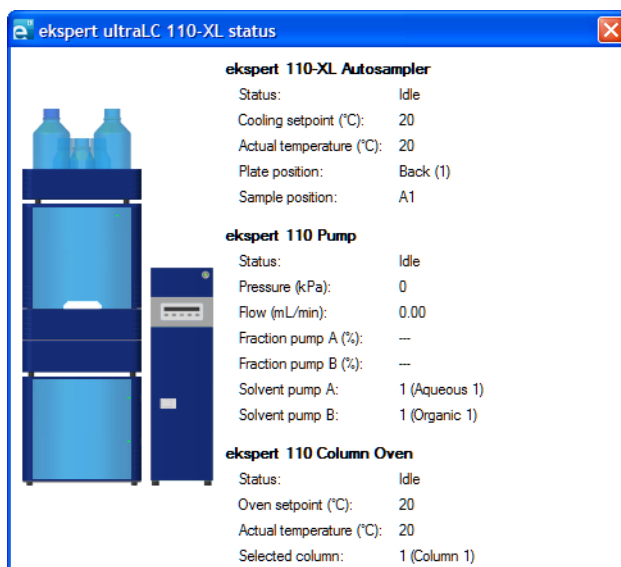
View System Information

1. Right-click the LC system icon in the system tray.
2. Click a device and then click **Direct Control**.
3. Click the **System Information** tab.

View Status Information

- Right-click the LC system icon in the system tray and then click **Detailed Status**.

Figure 5-1 ekspert ultraLC 110-XL status Dialog



Autosampler Maintenance

For information about configuring the ultraLC 100-XL/110-XL system, refer to [Configure the ultraLC 100-XL/110-XL system on page 17](#).

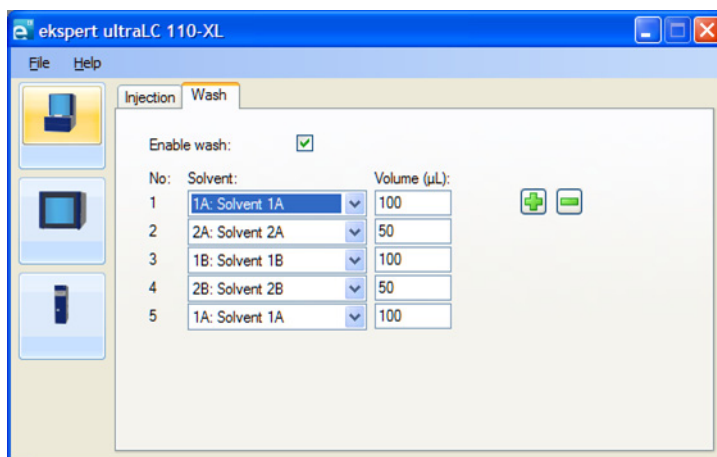
Customize the Wash Cycle

Prerequisite Procedures

- Open an LC method. Refer to [ekspert ultraLC 100-XL/110-XL Systems on page 23](#).

1. Click **Wash**.
2. Select the **Enable wash** check box.
3. In the **Solvent** fields, select solvents.
4. In the **Volume** fields, type wash volumes.

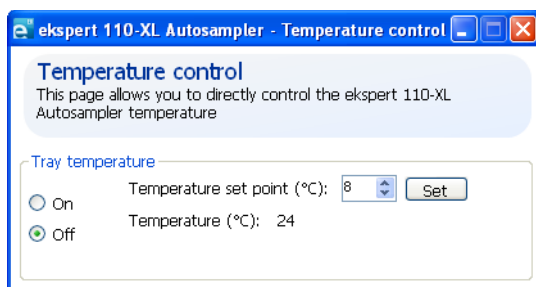
Figure 5-2 ekspert ultraLC 110-XL Autosampler Dialog: Wash Tab



5. Click **File > Save**.

Set the Autosampler Temperature

1. Right-click the LC system icon in the system tray and then click **Temperature Control**.

Figure 5-3 ekspert 110-XL Autosampler: Temperature control Dialog

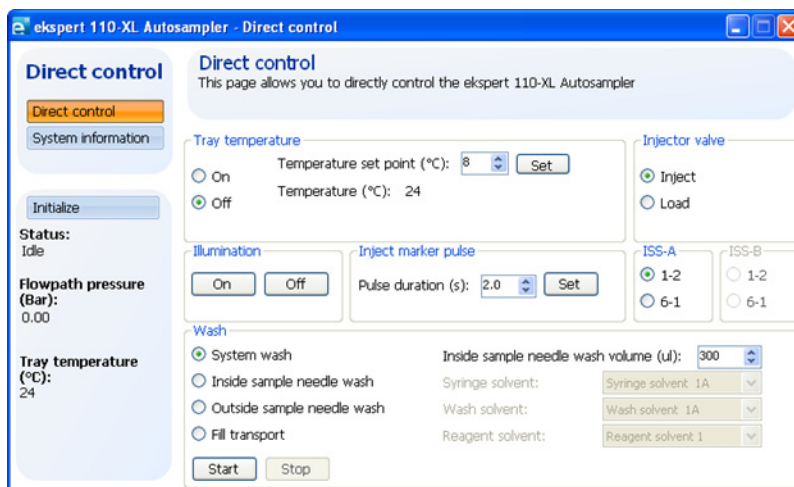
2. To turn off autosampler temperature control, click **Off**.
3. To turn on autosampler temperature control.
 - a. Click **On**.
 - b. In the **Temperature set point** field, type a temperature.
 - c. Click **Set**.

Perform an Initial Wash

After installing the sample needle, perform an initial wash to fill the syringe tubing.

Perform a Manual Wash

1. In the status bar, right-click the icon for the autosampler and then click **expert 110-XL Autosampler > Direct Control**.

Figure 5-4 ekspert 110-XL Autosampler - Direct control Dialog

2. In the **Wash** group, select **System wash**.



Tip! When installing the syringe, you can select Inside sample needle wash instead of System wash.

3. Click **Start** to refill the needle wash tubing with the needle wash solution.

- Repeat [step 3](#) at least two more times to fill the needle with wash solvent.
After installing the syringe or dispenser, continue with [Remove Air Bubbles from the Syringe on page 46](#).

Remove Air Bubbles from the Syringe

- If bubbles persist, repeat the initial wash while gently tapping the syringe until there is no air in the syringe.



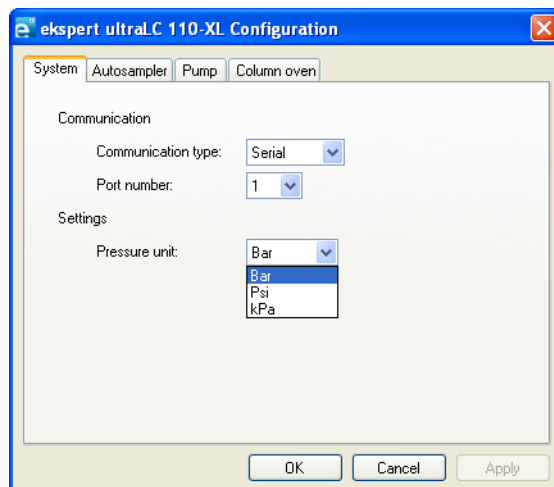
Tip! If a bubble persists at the tip of the plunger, remove the syringe plunger to release the air bubble, and then reinstall the plunger.

Pump Maintenance

Change Pump Pressure Display Units

- Right-click the LC system icon in the system tray.
- Click **Configure**.

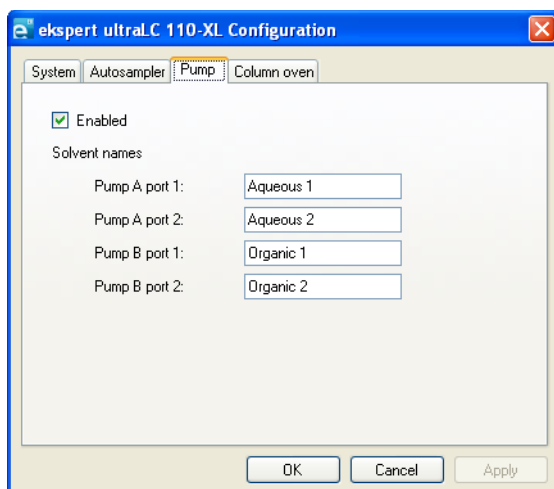
Figure 5-5 ekspert ultraLC 110-XL Configuration Dialog



- In the **Pressure Unit** field, select **Bar**, **PSI**, or **kPa**.

Change Pump Solvent Names

- Right-click the LC system icon in the system tray and then click **Configuration**.
- Click **Pump**.

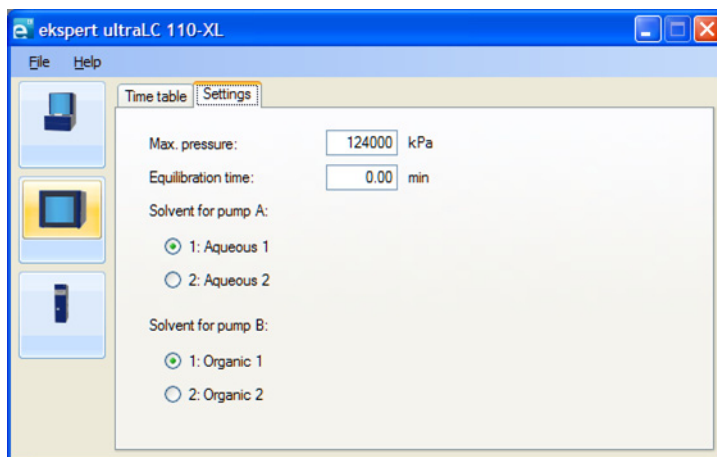
Figure 5-6 ekspert ultraLC 110-XL Configuration Dialog: Pump Tab

3. In the **Solvent names** fields, type new names.

Select Pump Solvents

The ekspert ultraLC 100-XL/110-XL system supports two solvents per pump.

1. Right-click the LC system icon in the system tray and then click **Configuration**.
2. Click **Pump**.
3. Click **Settings**.

Figure 5-7 ekspert ultraLC 110-XL Pump Dialog: Settings Tab

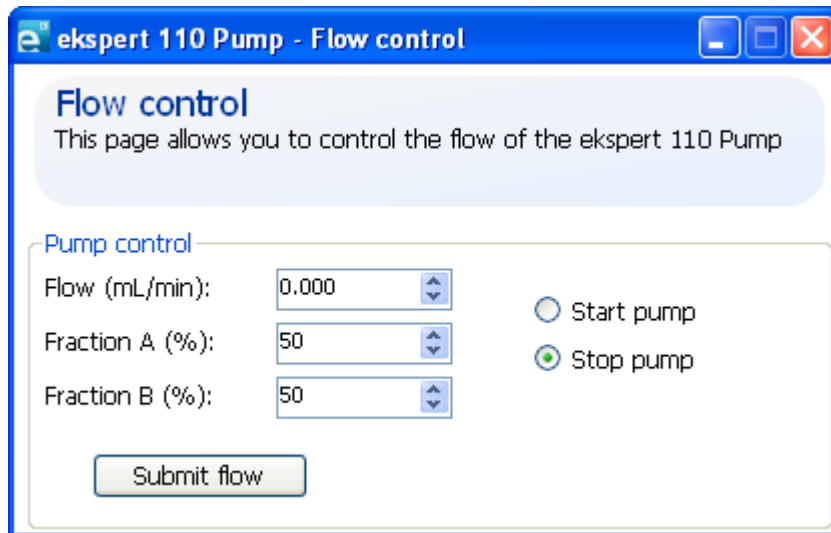
4. Click **Solvent** radio buttons.
5. Save the method.

Solvent information is saved to the acquisition method.

Set Pump Flow Rates

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Pump > Flow control**.

Figure 5-8 ekspert 110 Pump: Flow control Dialog



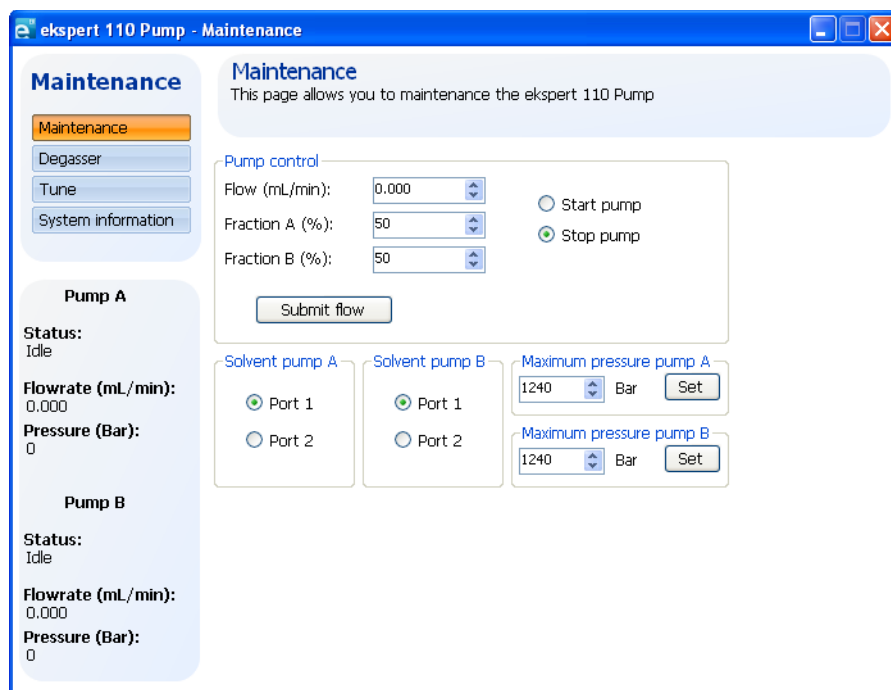
2. Type new flow values in the **Flow**, **Fraction A**, and **Fraction B** fields.
3. Click **Submit flow**.

Caution: Potential System Damage: If the pumps are turned on manually, make sure they are turned off when no longer required. The pumps must not be operated dry.

Set Pump Pressure

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Pump > Direct Control**.
2. Click **Maintenance**.

Figure 5-9 ekspert 110 Pump: Maintenance Dialog



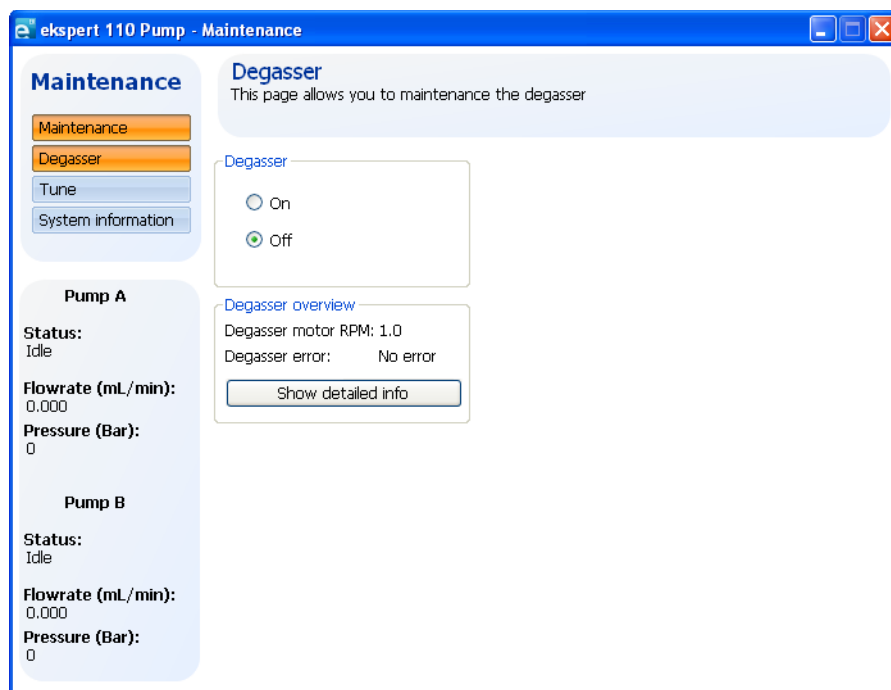
Note: Real-time pump information is shown on the left side of the dialog.

3. In the **Maximum pressure Pump A** field, select maximum pressure for Pump A and then click **Set**.
4. In the **Maximum pressure Pump B** field, select maximum pressure for Pump B, and then click **Set**.

Turn the Degasser On or Off

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Pump > Direct Control**.
2. Click **Degasser**.

Figure 5-10 ekspert 110 Pump: Maintenance Dialog: Degasser



3. To turn the degasser on, click **On**.
4. To turn the degasser off, click **Off**.

Set Pump Compressibility and Compensation Factors

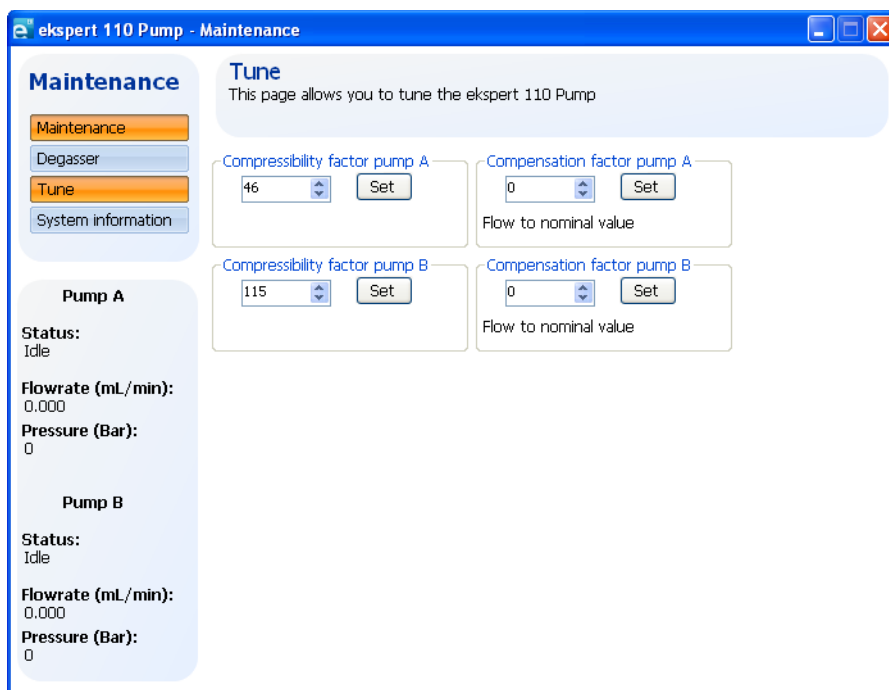
Pump A and Pump B are shipped with a compressibility factor of 121 (MeOH). Compressibility factors must be entered before the pumps are run for the first time and when solvents are changed.

Table 5-1 Compressibility Settings

Solvent	Setting
Water	46
Methanol	121
Acetonitrile	115
Hexane	167
THF	97

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Pump > Direct Control**.
2. Click **Tune**.

Figure 5-11 ultraLC 110 Pump: Maintenance Dialog: Tune



3. In the **Compressibility for pump A** field, select pump A compressibility and then click **Set**.
4. In the **Compressibility for pump B** field, select pump B compressibility and then click **Set**.
5. In the **Compensation factor pump A** field, select compensation factor for pump A and then click **Set**.
6. In the **Compensation factor pump B** field, select compensation factor for pump B and then click **Set**.

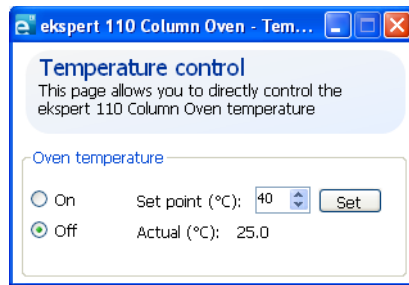
Column Oven Maintenance

Set the Column Oven Temperature

When the column oven temperature is set it a method, it takes effect when the method starts running and ends when the method ends. The procedures in this section set a column oven temperature that remains in effect when no method is running.

Temperature Control Dialog

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Column Oven > Temperature Control**.

Figure 5-12 ultraLC 110 Column Oven: Temperature control Dialog

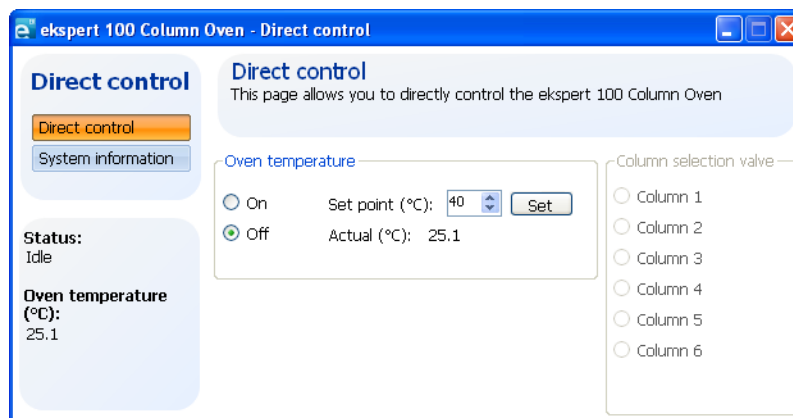
2. To turn the column oven on, click **On**.
3. To turn the column oven off, click **Off**.
4. To set the column oven temperature:
 - a. In the **Set point** field, select a set point.
 - b. Click **Set**.

Maintenance Dialog

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Column Oven > Maintenance**.
2. To turn the column oven off, click **Off**.
3. To turn the column oven on, click **On**.
4. To set the column oven temperature:
 - a. In the **Set point** field, select a set point.
 - b. Click **Set**.

Direct Control Dialog

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Column Oven > Direct Control**.

Figure 5-13 ultraLC 110 Column Oven: Direct control Dialog



Note: Real-time column oven information is shown on the left of the dialog.

2. To turn the column oven off, click **Off**.
3. To turn the column oven on, click **On**.
4. To set the column oven temperature:
 - a. In the **Set point** field, select a set point.
 - b. Click **Set**.

Set the Vapor Alarm Sensitivity

A vapor sensor is installed in the oven compartment of the column oven to signal leakage in the oven compartment. Set the vapor alarm sensitivity to Low, Standard, or High.

- A High setting generates a vapor alarm at low vapor concentrations in the column oven.
- A Low setting activates the alarm at much higher vapor levels.

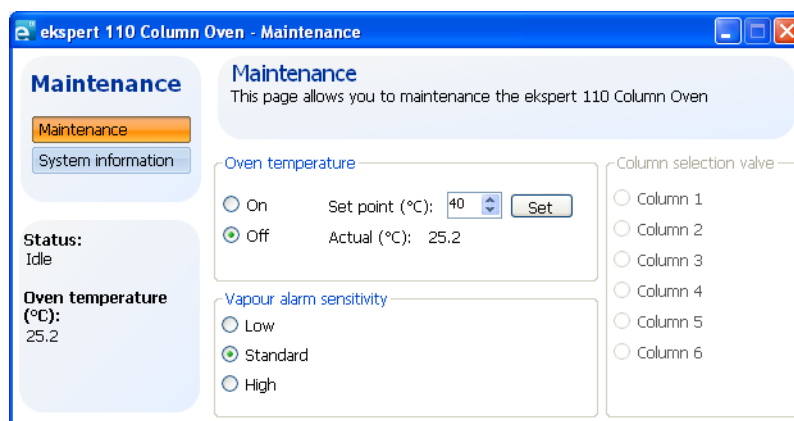
A volatile eluent will cause a vapor alarm sooner. The higher the temperature in the oven compartment, the sooner the vapor alarm will detect amounts of eluent leaking into the oven.



Note: The vapor sensor is not active in the first 2 minutes after power up.

1. Right-click the LC system icon in the system tray and then click **ekspert 110 Column Oven > Maintenance**.

Figure 5-14 ultraLC 110-XL Column Oven: Maintenance Dialog



2. Set the **Vapor alarm sensitivity** to **Low**, **Standard**, or **High**.

