

MassLynx 4.0 SCN #525 for MassLynx 4.0 SP4

MassLynx 4.0 SCN #525 for MassLynx 4.0 SP4 installs ACQUITY UPLC v1.1 is for existing installations of installed MassLynx 4.0 MassLynx 4.0 SP4 with ACQUITY UPLC 1.0.

New Features and Major Fault Fixes in MassLynx 4.0 SCN #525

The following is a brief summary of ACQUITY enhancements and major fault fixes for MassLynx 4.0 SCN #525.

- **Sample Organizer Support** – This release expands the available plate support from 2 (no Sample Organizer) to a maximum of 22 plates with the Organizer installed. Empower and MassLynx support is identical (except plate locations >2 can be run) and there is a new Organizer interface available in the ACQUITY Console.
- **User Settable Needle Volumes** - Support for the new 15ul needle volumes can now be configured for the Sample Manager.
- **2ul Sample Loop Support** - 2ul sample loops can now be successfully characterized and run.
- **Bubble Sensor Calibration** - There is now a Service utility to calibrate the bubble sensor to improve the overall system performance especially when operating with small injection volumes with small loop and needle volumes.
- **New Needle Overfill Injection Mode** – A new partial loop injection mode is available under the inlet method 'Custom' screen. This mode allows for very linear low volume injection volumes at the expense of additional sample consumption.
- **MassLynx Data Channel Support** – MassLynx data channel support is now available for a maximum of 16 'Analog' chromatographic data channels. These data channels can be acquired if there are no other Analog sources in the system (i.e. No MS Analog input, SATIN, or 2420 data).
- **Sample Manager Priming** – Erroneous error messages (Column Heater Watchdog Timeout & Wash Syringe H/W Fault) associated with solvent viscosity changes have been corrected. These messages should no longer appear when priming the wash syringes with low/high viscosity wash solvents.
- **ACQUITY TUV Calibration** – The TUV's calibration data is now properly restored on each power-up.
- **ACQUITY Console Diagnostic Channels** – These channels can now be displayed in MassLynx.

Waters

716001648, Rev. A

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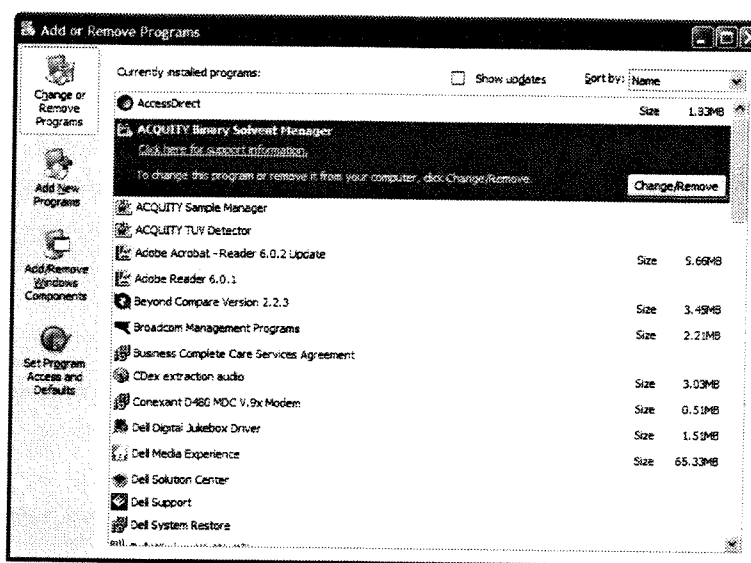
General Information about the ACQUITY UPLC System firmware

New ACQUITY Binary Solvent Manager, Sample Manager, Sample Organizer and TUV Detector firmware is included with this distribution and must be loaded using the Loader Utility. Please note that the ACQUITY 2996 firmware is included for completeness but no update is needed.

- The ACQUITY UPLC Binary Solvent Manager (BSM) firmware Version 1.10 has a checksum **310421E6**.
- The ACQUITY UPLC Sample Manager (SM) firmware Version 1.10 has a checksum **DC76687A**.
- The ACQUITY UPLC TUV firmware Version 1.10 has a checksum **15ADC53B**.
- The ACQUITY UPLC 2996 PDA firmware Version 4.00 has a checksum **91D6C056**.
- The ACQUITY UPLC Sample Organizer (SO) Version 1.10 has checksum **B75235EE**.

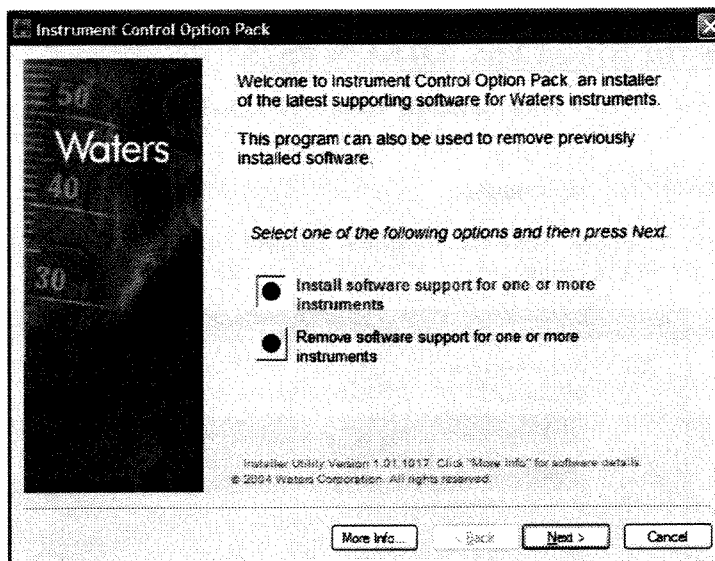
Installation instructions for MassLynx 4.0 SCN #525

1. Confirm that MassLynx 4.0 SP4 is the installed version of MassLynx by starting MassLynx and selecting *<HELP, about MassLynx>*.
2. Exit all applications and restart the computer.
3. Go to "Add or Remove Programs" from the Windows "Control Panel". Select and click the "Change/Remove" button. Remove all ACQUITY UPLC Component.

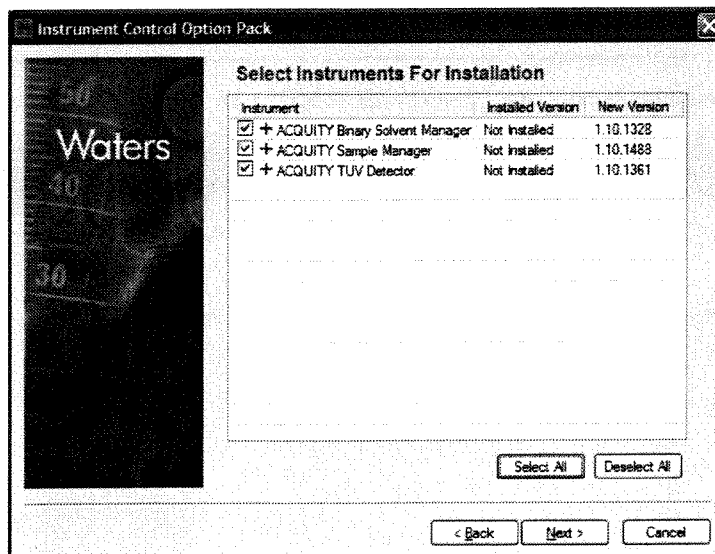


4. Install SCN #525 by running "update.exe" from the SCN #525 CD.

Note: SCN #525 will prompt you for the MassLynx 4.0 SP4 CD. When the CD is inserted, autorun causes the SP4 installer to start. To prevent this from happening, hold down the shift key while the CD drive closes.
5. Run MassLynx. MassLynx will display a message indicating that the Waters Instrument Control Option Pack will be launched.
6. Install Instrument Control Option Pack by selecting "Install software support for one or more instruments" and click on "Next".



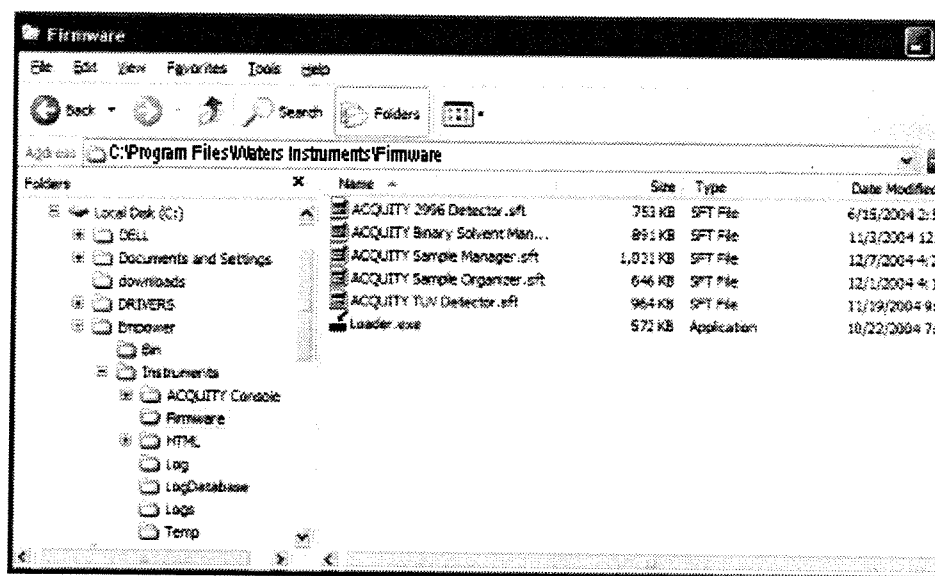
7. Select all ACQUITY instruments (or a number of instruments) for installation and click on “Next” as shown below:
NOTE: For optimal results always install ACQUITY TUV even if the system does not have an ACQUITY TUV instrument. Additional instruments may appear in the selection box.



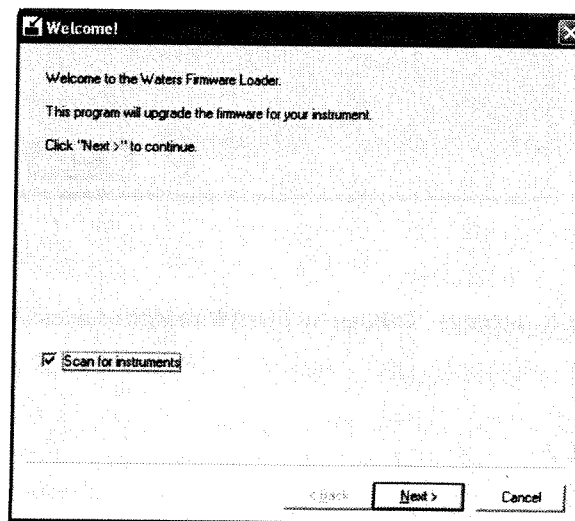
8. Wait for the install process to complete and click on “Finish” when it completes.
9. Go to ***Installing the Firmware Updates*** below.

Installing the ACUITY 1.1 Firmware Updates on a MassLynx Workstation with MassLynx 4.0 SP4 and SCN #525

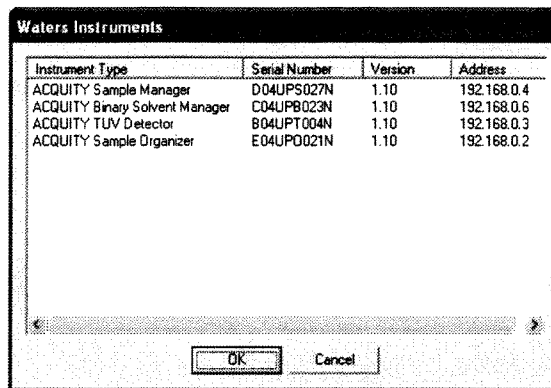
1. Confirm that all instruments are powered on and properly connected for communication with the workstation.
2. Open a Windows Explore window and go to directory “C:\Program Files\Waters Instruments\Firmware”. An example is shown below:



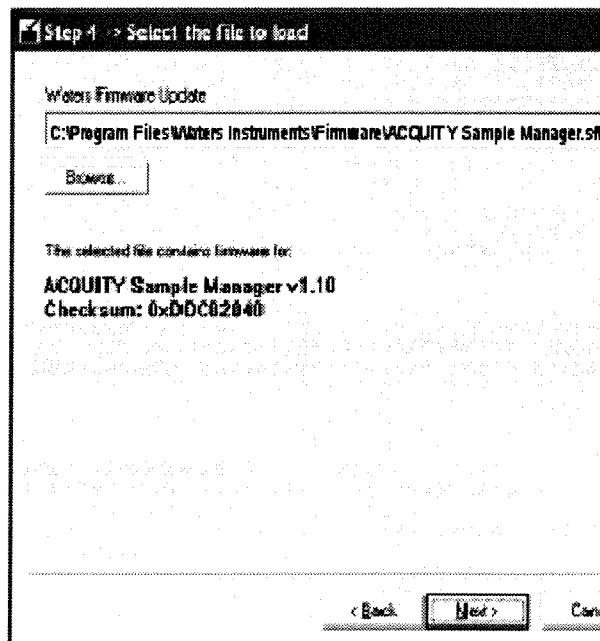
Double click on “Loader.exe” to start the Loader application shown below:



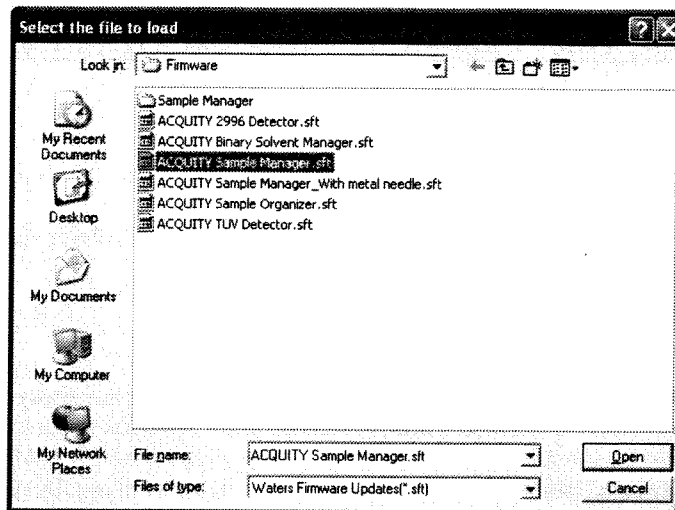
3. Click on “Next” to scan for instruments shown below:



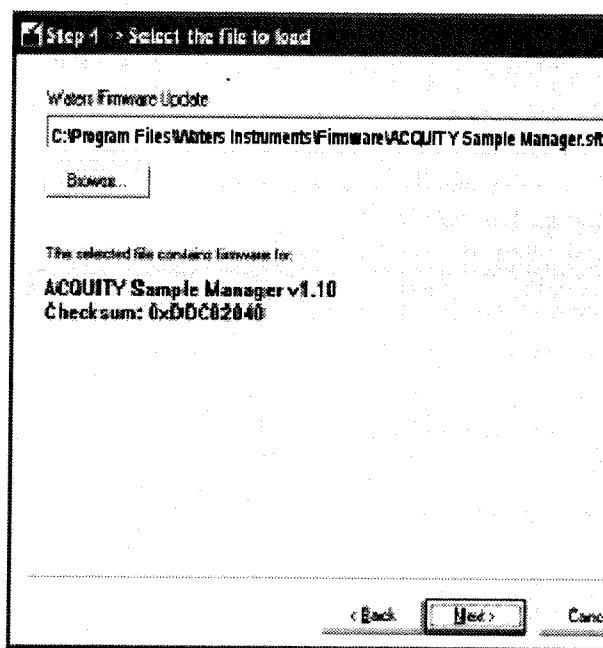
4. Click on an instrument to select it and click "OK".



5. Click on "Browse..." and go to directory "c:\Program Files\Waters\Instruments\Firmware". An example is shown below:



6. Select the appropriate file for the instrument and click on “Open”.



7. Click next to start the download process. When the download completes click on “Finish” and recycle power on the instrument. **Note: When the BSM firmware is being installed, wait 15 minutes and recycle the power a second time.**
8. Repeat from step 2 for all remaining instruments.

NOTE: The Sample Manager Needle and Sample Loop Characterization must be performed when upgrading from the initial 1.0 release.

Informational Notes for the Operation of the Waters ACQUITY UPLC System

ACQUITY UPLC System

To maintain proper drainage and leak control the ACQUITY UPLC system must be level within $\pm 2^\circ$.

Solvents tested with ACQUITY UPLC Systems include Acetonitrile, Water, Trifluoroacetic Acid, Formic Acid, Isopropyl Alcohol and Methanol.

ACQUITY UPLC Binary Solvent Manager (BSM)

As a safety measure, the Stop Flow controls on the Control Panel and Console are always active. Initiating a “Stop Flow” command will stop the Binary Solvent Manager (BSM) even during an injection sequence. A stop flow event raises an alarm. The text is “Stop Flow from remote host”. A “Reset SAMPLE MANAGER (SM)” must be executed to proceed. Note: the Binary Solvent Manager (BSM) can be stopped without raising an alarm, by using the Set Flow dialog and setting the flow to zero.

Super Sync is a technique to mitigate the pressure disturbance associated with the injection of low pressure sample into the high pressure UPLC fluid stream, to enhance chromatographic performance related to retention time and area reproducibility. It is important to note that the implementation of this correction adds a gradient delay of 2.5 seconds for each injection. Due to this gradient delay it is recommended that when calculating system volume in Empower the user performs these measurements in the 'inject immediate samples' mode rather than in the 'inject samples' mode so the Super Sync time addition does not interfere.

ACQUITY UPLC Sample Manager (SM)

- **NOTE: The Sample Manager Needle and Sample Loop Characterization must be performed when upgrading from the initial 1.0 release.**
- The ACQUITY UPLC Sample Manager (SM) supports only sample plates and vial holders that conform to the ANSI standards.
- The Sample Manager (SM) does not support cap mat covers for samples in well plates. Such plates should be covered with heat-sealed foil.
- It is recommended to fill sample vials to about two thirds of the total volume to prevent the puncture needle from coming into contact with the sample.
- To maintain proper drainage and leak control the ACQUITY UPLC system the SM Fluidics tray must be fully closed during routine operation.

ACQUITY UPLC Sample Organizer (SO)

- The ACQUITY UPLC Sample Organizer (SO) supports only sample plates and vial holders that conform to the ANSI standards.
- All samples should be covered to protect against cross contamination of samples during transit between the sample manager and the organizer.
- Before moving the ACQUITY Sample Organizer to another computer and/or system, the user **MUST** set the selected ACQUITY Sample Organizer to “NONE” in the Console. In the Console window, select “Sample Manager” from the left pane. From the Sample Manager pull down menu now revealed in the right pane select “Configure”. Next select “Sample Organizer...”. Set the “Sample Organizer Serial Number” to “None” and click OK. **ALWAYS** turn off power on all instruments before connecting to a different computer. After installation, re-configure the Sample Organizer, if any, by selecting its serial number. This process insures that all IP are assigned correctly.

ACQUITY UPLC TUV and 2996 PDA Detectors

The ACQUITY UPLC optical detectors when configured as the only detector in the system are plumbed with a back pressure regulator before the waste line. This configuration will cause the system backpressure to register above 200 psi even at zero flow.

Waters ACQUITY UPLC System Console

- The ACQUITY UPLC System Console revision 1.1 supports the ACQUITY UPLC Binary Sample Manager (BSM), Sample Manager (SM), Sample Organizer (SO) and Tunable UV (TUV) Detector. The ACQUITY UPLC 2996 PDA detector firmware has additional diagnostics to enhance troubleshooting and information available to users.
- Saving a plot file from the ACQUITY UPLC system console may take up to 100MB of file space.
- In version 1.0 of the ACQUITY UPLC system console a “Stop Flow” pull down menu was available. This is not active in version 1.1. Stop flow can be initiated from the Console “Stop Flow” button.

Waters ACQUITY UPLC System operation

- All tubes must be removed from behind the Column Manager hinge, prior to swinging out, and replaced if restoring the Column manager to the default position.
- A full loaded eCord may require more than a minute to be completely read. The eCord will display a ‘yellow’ status and state that the chip is being read, wait until the color reverts to green.
- The eCord on the ACQUITY UPLC columns have a variety of information such as injection count and sample queue history recorded on them. The injection count is incremented when the injection is actually started while the sample queue history is recorded upon completion of a run. It is therefore important to keep the eCord connected during an entire run to ensure accuracy between the summary and queue data. The current queue, therefore, is not displayed on the eCord screen.
- The eCord stores and displays only the last 50 entries.
- The Sample Manager (SM) will not start an injection cycle until the current temperature is within half of the programmed alarm range. For example, if the column temperature set point is 50 °C with a range limit of ± 5 °C, the Sample Manager (SM) will wait until the column temperature reaches 47.5 °C before starting the injection. Before starting an acquisition, ensure the system is at thermal equilibrium.

Waters ACQUITY UPLC System Control by MassLynx™ Software version 4.0 Service Pack 4.0 software

The Waters ACQUITY UPLC System can be controlled by MassLynx software version 4.0 Service Pak 4.0. This section lists the hardware and software requirements as well as operational considerations when using MassLynx to control the ACQUITY UPLC system.

MassLynx Software Required Operating System

Operating system support for the ACQUITYUPLC System is as follows:

- Microsoft Windows 2000® with Service Pack **Note:** Only the English (United States) version of the operating system is supported.
- Microsoft Windows XP® Professional with Service Pack 1a.

- A number of Microsoft Security Hot fixes have been tested and are listed in the MassLynx 4.0 SP4 release notes. **Note:** Only the English (United States) version of the operating system is supported.
- The ACQUITY UPLC PDA detector requires a GPIB card installed on the MassLynx workstation to control and acquire data from an I-EEE 488 device (National instruments GPIB board and software, part number 186000825). Internet Explorer version 5.5 with Service Pack 2 or higher is required.
- Microsoft Windows 95, Windows 98 and Windows NT are not supported. **Note:** When installing MassLynx SP4 the Instrument Component Software (I.C.S.) is embedded within the MassLynx SP4 software. The required I.C.S. is automatically installed after the ACQUITY UPLC modules have been configured in the MS Inlet Method.
- The ACQUITY Software **will not** work if either the 2525 or 2420 has been installed by the ICOP. To correct the situation, uninstall all ICOP software and re-install ACQUITY only.
- McAfee Antivirus software with "Enable Script Stopper" checked will cause a sample list to pause. Correct this situation by unchecking "Enable Script stopper in the McAfee Configure Virus Options, Advanced window.

Operational Notes under MassLynx version 4.00 SP 4.0 control

This section describes the operational considerations when using MassLynx to control the Waters ACQUITY UPLC System.

ACQUITY UPLC System

- The ACQUITY UPLC system is currently supported with the following MS instruments: ZQ, Quattro Micro, Quattro Premier, LCT Premier, Q-TOF Micro.
- The ACQUITY UPLC system is currently supported with the following Application Managers: QuanLynx, Target Lynx, MarkerLynx, OpenLynx.
- When performing the following functions, allow some time for the read back to refresh as the status update can take up to 30 seconds: Pump On/Off, Autosampler Light On/Off and UV Lamp On/Off and Seal Wash On/Off.
- If a sample list is aborted and the inject cycle light is yellow, either reset communications or wait for the inject cycle light to turn from yellow to green before restarting the sample list or running a new sample list.
- The ACQUITY UPLC System is not supported with installations of Waters 2420 Evaporative Light Scattering Detector or Waters 2525 Binary Gradient Module control software.
- Chromatogram real-time update is not supported for UV-only (systems without a mass spectrometer) ACQUITY UPLC systems operated with MassLynx with Secure Files Access security enabled (PCS # TG385).
- The ACQUITY UPLC System Console supports only the ACQUITY UPLC BSM, SM, SO and TUV. The ACQUITY 2996 PDA detector firmware has additional diagnostics to enhance troubleshooting and information available to Waters field service representatives.
- The ACQUITY UPLC System must be installed without a Mass Spectrometer to run the ACQUITY UPLC system with only optical detectors.
- The ACQUITY UPLC System allows a local module reset through the control panels and the console that does not take MassLynx out of Error. An Inlet "Reset Communications" is still necessary after an ACQUITY LC Error.
- MassLynx Inlet Methods now supports a 'Data Tab' allowing chromatographic data acquisition of a variety of useful diagnostic data channels such as System Pressure and Solvent Composition. A maximum of 16 data channels can be

enabled. This data can be viewed in the Chromatogram viewer as 'Analog Data'. These channels, however, should be disabled if another 'Analog Data' source such as the MS Analog inputs is used.

ACQUITY UPLC Sample Manager (SM)

- Sample Plates are loaded into the Autosampler rotated 90° clockwise relative to the standard 'landscape' presentation shown in the Plate Generator and Autosampler Bed-Layout windows.
- Reset Injector in the inlet editor, LC dropdown menu does not reset the ACQUITY UPLC Sample Manager (SM). The ACQUITY UPLC Sample Manager (SM) should be reset from the console or by right clicking on the autosampler icon on the ACQUITY UPLC Additional Status Page or selecting 'Reset Communications' from the inlet menu.
- "No Plate" is not a valid configuration for the ACQUITY UPLC Autosampler in OpenLynx. If you wish to submit samples in OA Login from plate 2 only the following workaround should be used: In the Inlet Editor, Bed Layout configure a plate or position 1 which is a different plate type to the plate you wish to use in position 2. In OA Login, select File, Plate Options and click on the plate you have configured in position 1. A red X should appear before the plate description. Now you can login samples on plate 2.

ACQUITY UPLC Sample Organizer (SO)

- "No Plate" in the first position in the AutoSampler Bed Layout is not supported and may cause a Run Time Error during injection.
- Plates must be placed in consecutive positions for a successful Open Access Login.

ACQUITY UPLC TUV Detector

- The Waters ACQUITY UPLC TUV is referenced as PDA Detector in MassLynx software.
- The Waters ACQUITY UPLC TUV creates a TIC chromatogram corresponding to the sum of the channels defined in the inlet method. To view single-channel data, extract a wavelength chromatogram at the wavelength defined in the inlet method using the MassLynx Chromatogram utility.

ACQUITY UPLC 2996 PDA Detector

- ACQUITY UPLC PDA Detector can be triggered by contact closure only i.e. there is no option available in the software to trigger the detector by software and a cable must be attached from the inject start of the Autosampler to Event In 1 of the Detector.
- MassLynx does not support the Ratio Plot function on analog out terminals.
- When using analog channels, use the Hamming filter, not Single Pole filters.
- Waters recommends operating the ACQUITY UPLC PDA Detector at 1.2-nm resolution.
- The ACQUITY UPLC System 2996 PDA lamp may require as long as 90 seconds to light.

