ACQUITY UPLC Leak Sensor maintenance instructions

Contents:

Waters
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71500082506, Rev. A

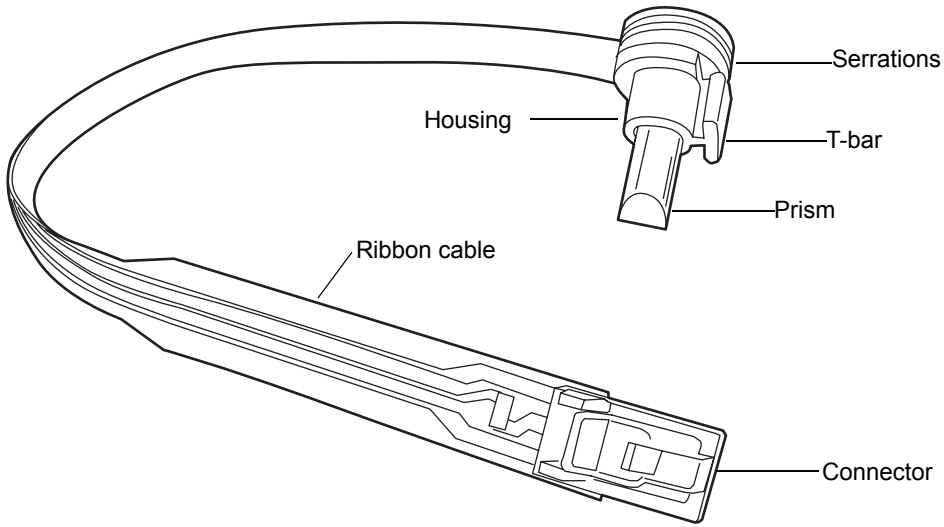
Overview

Leak sensors in the drip trays of ACQUITY UPLC® system instruments continuously monitor the instruments for leaks. A leak sensor stops system flow when its optical sensor detects about 1.5 mL of accumulated, leaked liquid in its surrounding reservoir. At the same time, the ACQUITY UPLC Console displays an error message alerting you that a leak has developed.

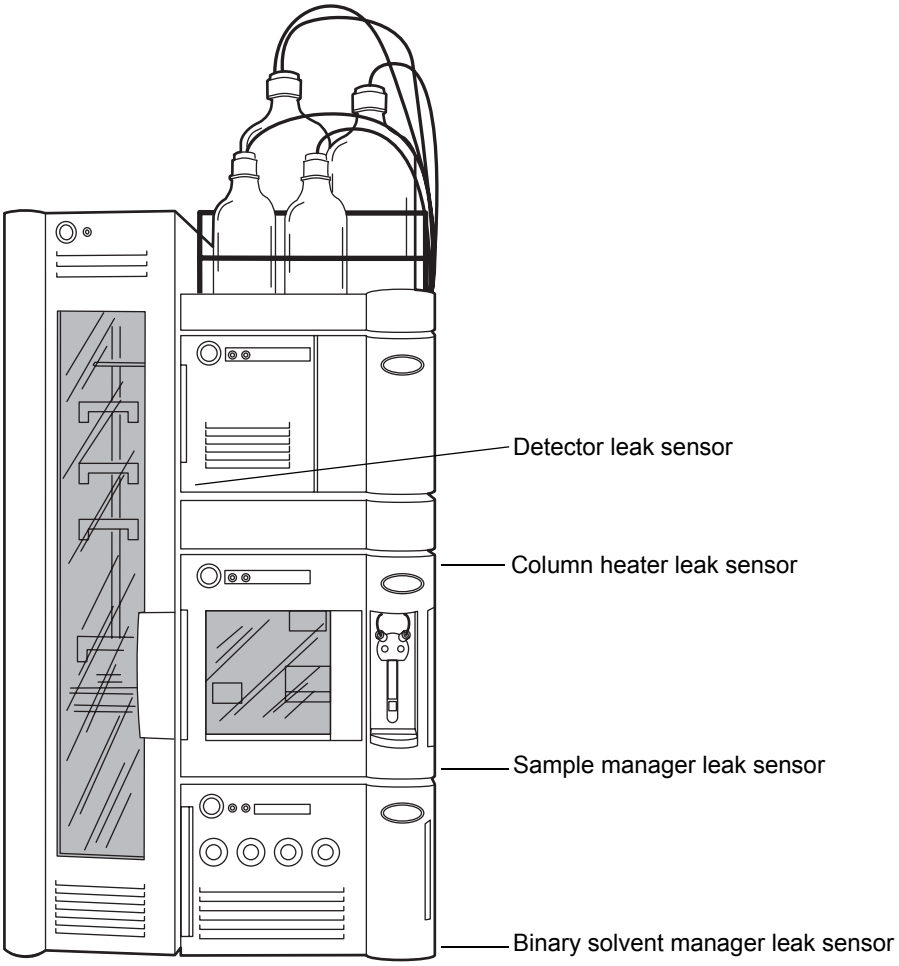
Notes:

- ACQUITY UPLC detectors that have a leak sensor include the TUV, PDA, ELS, FLR, SQ, and TQ detectors.
- The ACQUITY UPLC sample organizer and HPLC column heater/cooler do not have leak sensors.

Leak sensor components



Typical location of leak sensors



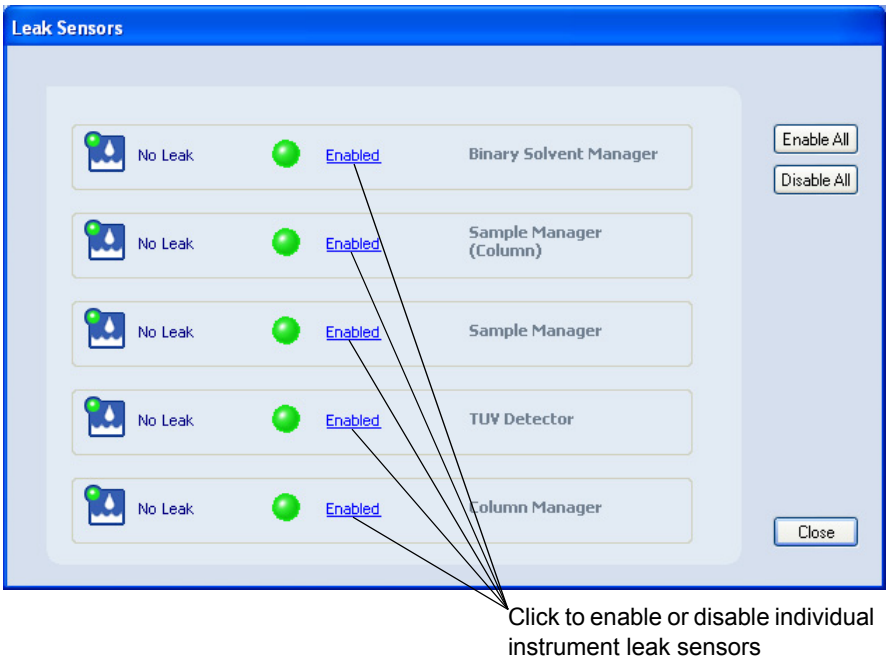
Enabling the leak sensors in the software

Tip: When you power-on the system, the leak sensors default to disabled if they were never previously enabled.

To enable the leak sensors:

1. On the ACQUITY UPLC Console system page, select Control > Leak Sensors.

Leak Sensors dialog box



2. To enable the leak sensor for an individual instrument, click the status, to the left of the instrument description.

   Tip: To enable all leak sensors, click Enable All.

Resolving leak sensor errors in general

When a leak sensor detects a leak, the system flow stops, an alarm sounds, an error message appears on the affected instrument's information window in the ACQUITY UPLC Console, and, if Connections INSIGHT is installed, an alert is sent. You must clear a leak error before system flow resumes.

Resolving a leak error involves this procedure:

- locating the source of the leak
- repairing the leak
- removing the leak sensor from the instrument's drip tray
- drying the leak sensor
- drying the liquid in the leak sensor reservoir
- reinstalling the leak sensor
- and resetting the instrument

Resolving binary solvent manager leak sensor errors

After approximately 1.5 mL of liquid accumulates in the binary solvent manager's leak sensor reservoir, an alarm sounds, indicating that the leak sensor detected a leak.

Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Caution: To avoid scratching or damaging the leak sensor

- do not allow buffered solvents to accumulate and dry on it.
- do not submerge it in a cleaning bath.

Required materials

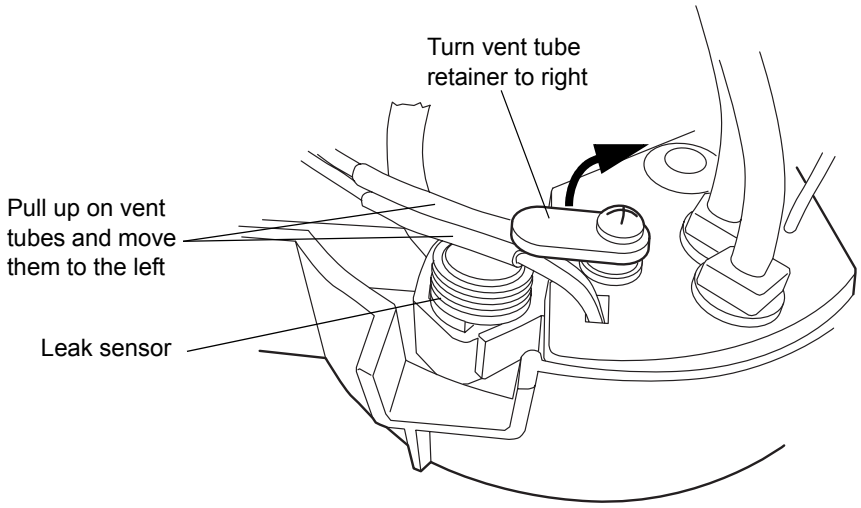
- Chemical-resistant, powder-free gloves
- Cotton swabs
- Nonabrasive, lint-free wipes

To resolve a binary solvent manager leak sensor error:

1. View the Leak Sensors dialog box in the ACQUITY UPLC Console to confirm that the binary solvent manager leak sensor detected a leak.

   Tip: If a leak was detected, a "Leak Detected" error message appears.

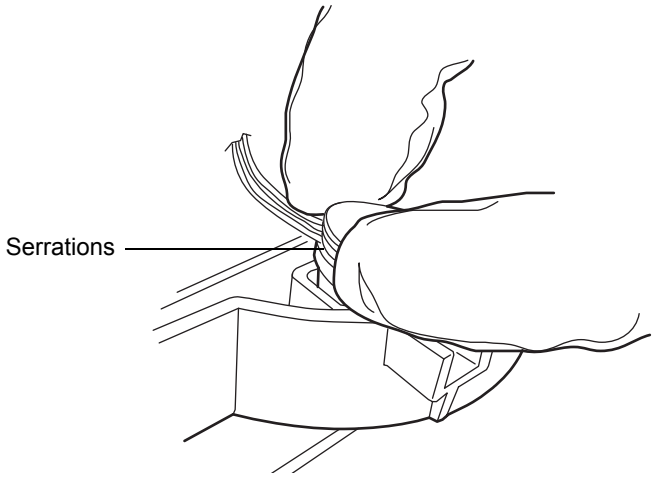
2. Open the binary solvent manager's door, gently pulling its right edge toward you.
3. Locate the source of the leak, and make the repairs necessary to stop the leak.
4. Turn the vent tube retainer to the right, and then lift the A-vent and B-vent tubes out of the drip tray by pulling up on them and moving them to the left of the leak sensor.



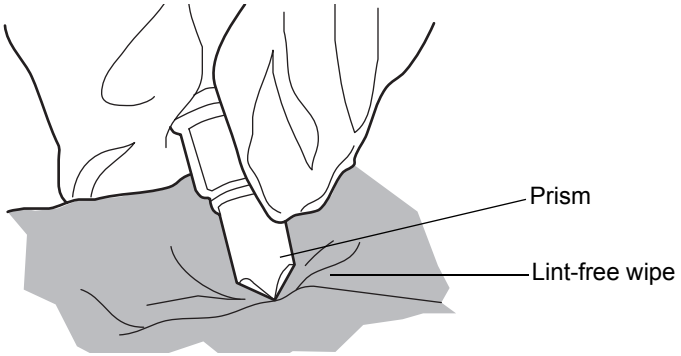
Caution: To avoid damaging the leak sensor, do not grasp it by the ribbon cable.

5. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.

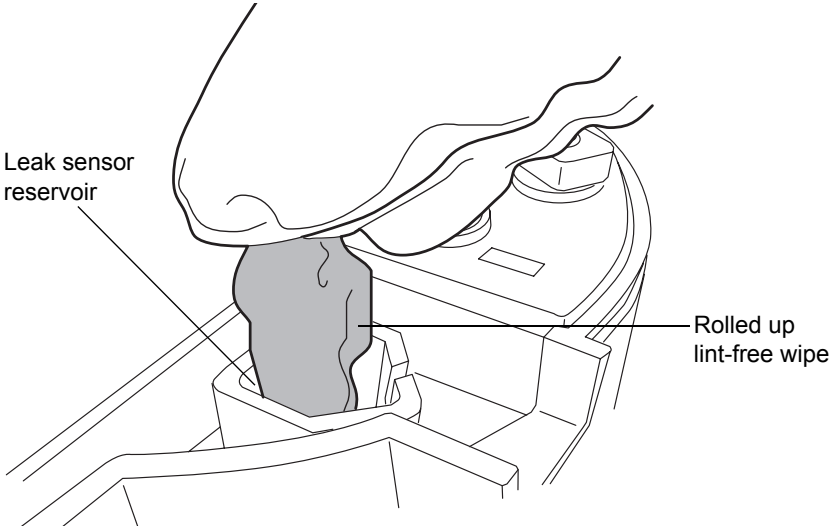
   Tip: If the leak sensor cannot be easily manipulated after being removed from its reservoir, detach the connector from the front of the instrument (see page 1-35).



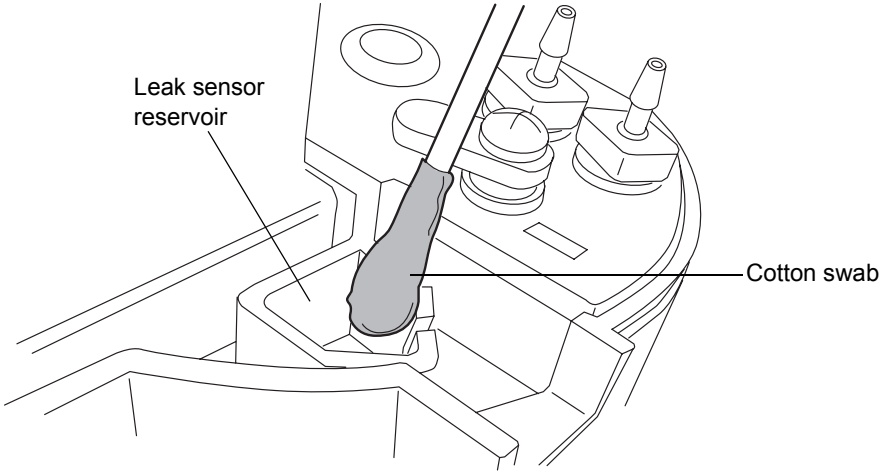
6. Use a nonabrasive, lint-free wipe to dry the leak sensor prism.



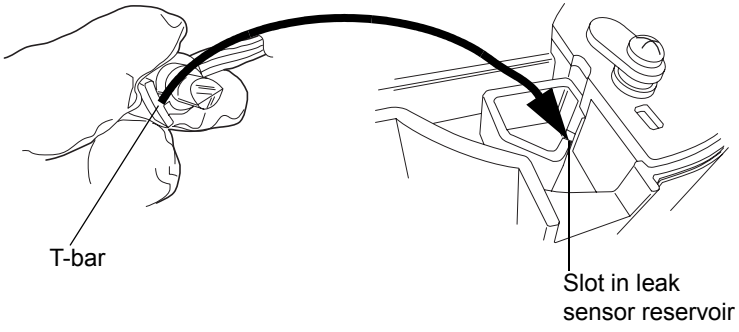
7. Roll up a nonabrasive, lint-free wipe, and use it to absorb the liquid from the leak sensor reservoir and its surrounding area.

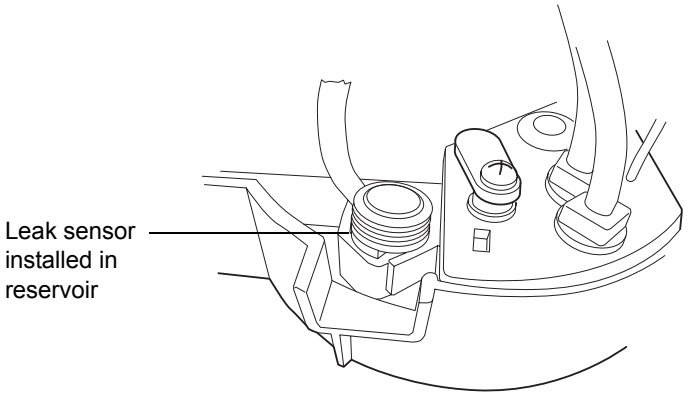


8. With a cotton swab, absorb any remaining liquid from the corners of the leak sensor reservoir and its surrounding area.



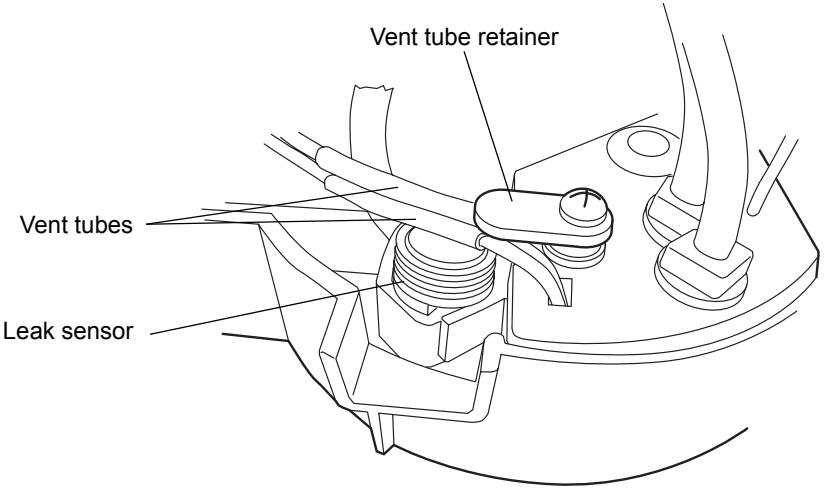
9. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





10. Reinsert the A-vent and B-vent tubes into the drip tray.

11. Turn the vent tube retainer, which holds the A-vent and B-vent tubing in place, to the left.



12. In the ACQUITY UPLC Console, select Binary Solvent Manager from the system tree.
13. In the binary solvent manager information window, click Control > Reset BSM to reset the binary solvent manager.

Resolving sample manager leak sensor errors

After approximately 1.5 mL of liquid accumulates in the sample manager's leak sensor reservoir, an alarm sounds, indicating that the leak sensor detected a leak.

Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Caution: To avoid scratching or damaging the leak sensor:

- do not allow buffered solvents to accumulate and dry on it.
- do not submerge it in a cleaning bath.

Tip: The sample manager is the only ACQUITY UPLC instrument with two leak sensors, bottom and top, called the sample manager leak sensor and the column heater leak sensor, respectively.

Required materials

- Chemical-resistant, powder-free gloves
- Cotton swabs
- Nonabrasive, lint-free wipes

To resolve a sample manager leak sensor error:

1. View the Leak Sensors dialog box in the ACQUITY UPLC Console to determine which of the sample manager's two leak sensors detected a leak.

   Rules:

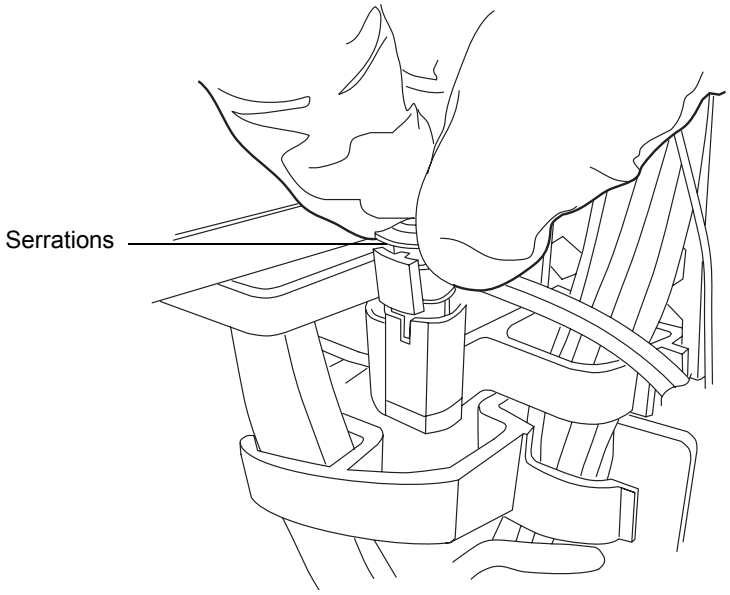
   - The error message "Leak Detected" means the sample manager leak sensor, on the sample manager's bottom right corner, detected the leak.
   - The error message "Leak Detected (Column)" means the column heater leak sensor, on the sample manager's top right corner, detected the leak.

2. Slide out the sample manager fluidics tray.

3. Locate the source of the leak, and make the repairs necessary to stop the leak.

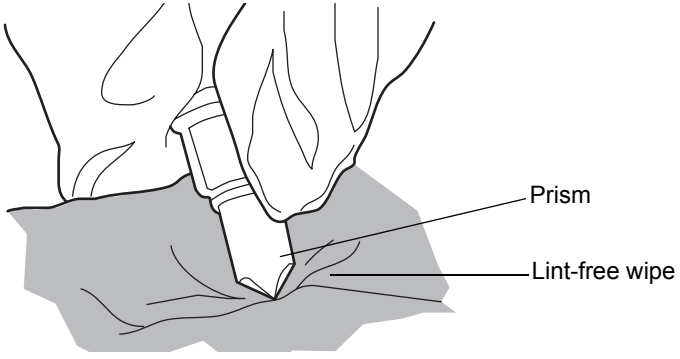
Caution: To avoid damaging the leak sensor, do not grasp it by the ribbon cable.

4. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.

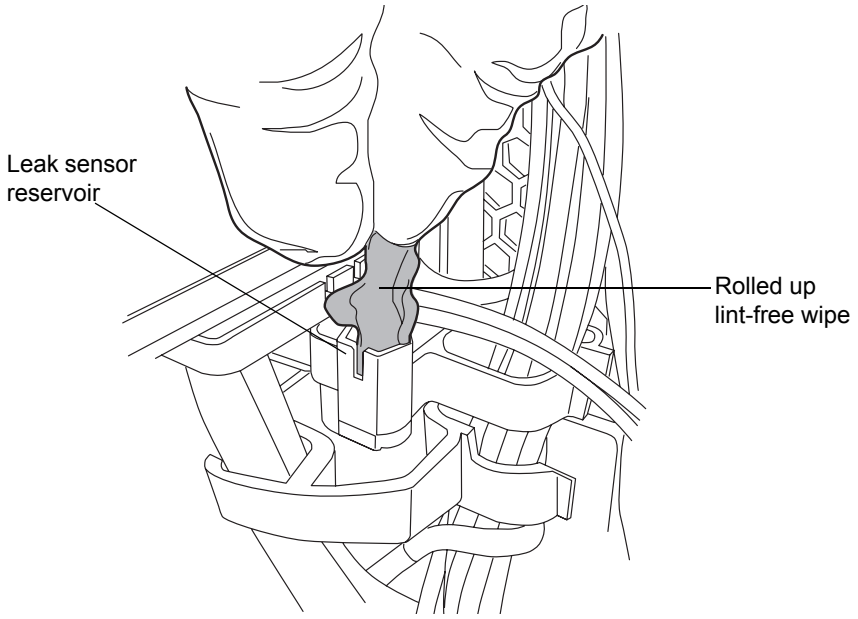


Tip: If the leak sensor cannot be easily manipulated after being removed from its reservoir, detach the connector from the front of the instrument (see page 1-39).

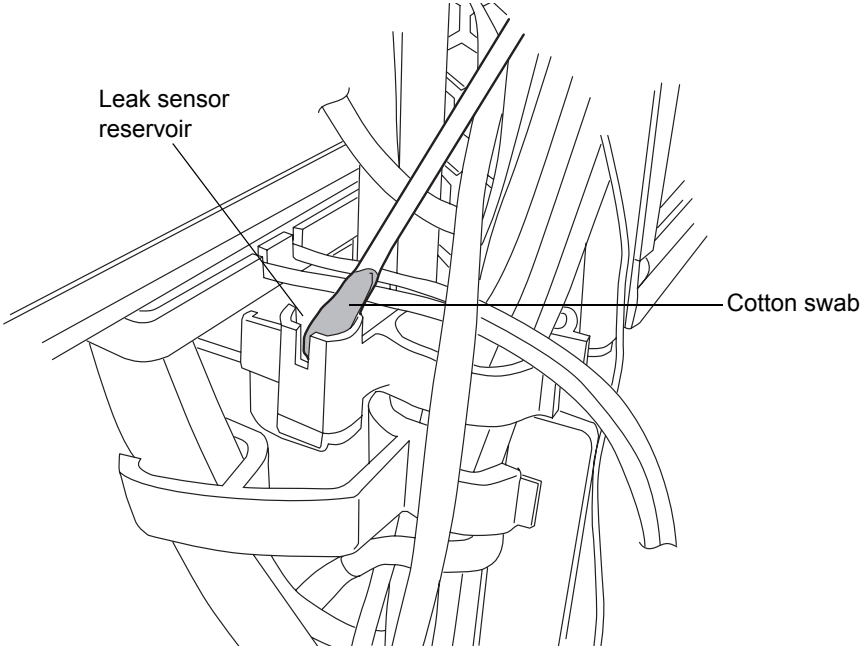
5. Use a nonabrasive, lint-free wipe to dry the leak sensor prism.



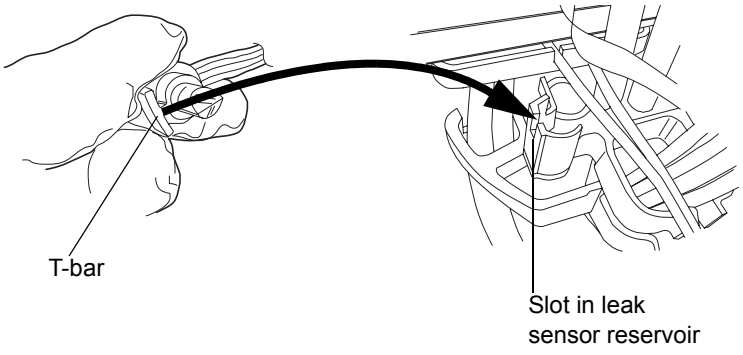
6. Roll up a nonabrasive, lint-free wipe, and use it to absorb the liquid from the leak sensor reservoir and its surrounding area.

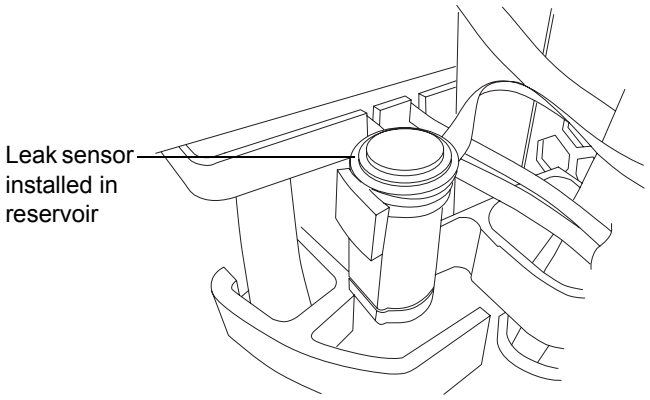


7. With a cotton swab, absorb any remaining liquid from the corners of the leak sensor reservoir and its surrounding area.



8. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





9. In the ACQUITY UPLC Console, select Sample Manager from the system tree.
10. In the sample manager information window, click Control > Reset SM to reset the sample manager.

Resolving column heater leak sensor errors

After approximately 1.5 mL of liquid accumulates in the column heater's leak sensor reservoir, an alarm sounds, indicating that the leak sensor detected a leak.

Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Caution: To avoid scratching or damaging the leak sensor:

- do not allow buffered solvents to accumulate and dry on it.
- do not submerge it in a cleaning bath.

Tip: Small column leaks can be undetectable because they can evaporate before reaching the leak sensor reservoir.

Required materials

- Chemical-resistant, powder-free gloves
- Cotton swabs
- Nonabrasive, lint-free wipes

To resolve a column heater leak sensor error:

1. View the Leak Sensors dialog box in the ACQUITY UPLC Console to determine which of the sample manager's two leak sensors detected a leak.

   Rules:

   - The error message "Leak Detected" means the sample manager leak sensor, on the sample manager's bottom right corner, detected the leak.
   - The error message "Leak Detected (Column)" means the column heater leak sensor, on the sample manager's top right corner, detected the leak.

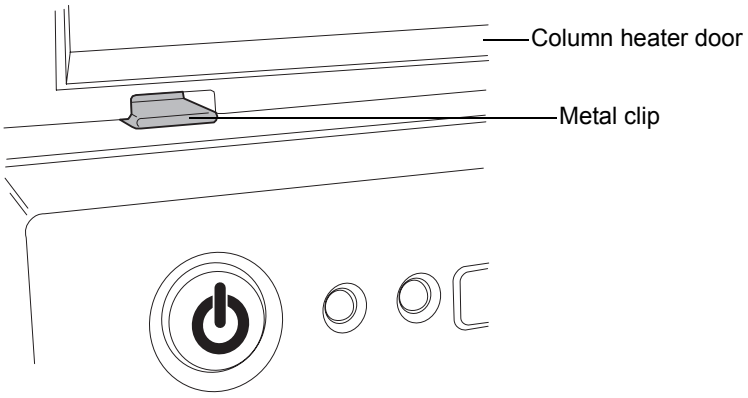
2. Open the column heater's door.

3. Locate the source of the leak, and make the repairs necessary to stop the leak.

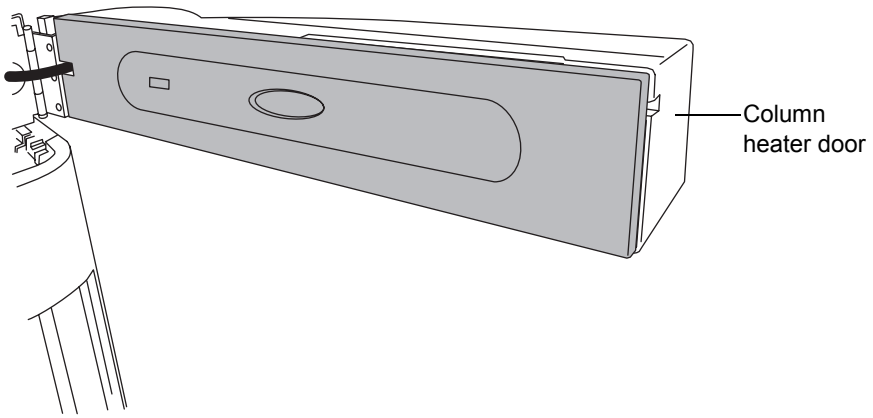
   Tip: Liquid from a detector leak can sometimes accumulate in the column heater leak sensor reservoir and cause the column heater leak sensor alarm to sound. Always inspect the detector when attempting to locate the source of a leak.

4. Remove any solvent lines routed between the column heater door and hinge.

5. Push down on the metal clip at the bottom, left-hand side of the column heater to release the door, and then pull the door toward you.

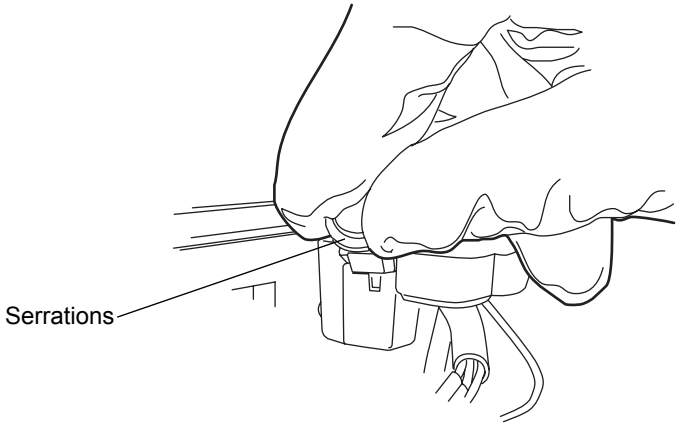


6. Swing the door fully to the right.



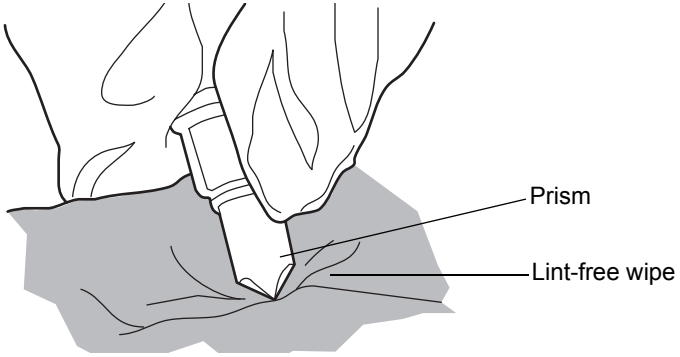
Caution: To avoid damaging the leak sensor, do not grasp it by the ribbon cable.

7. Remove the leak sensor from its reservoir by grasping it by its serrations, pulling upward on it, and tilting it to the left.

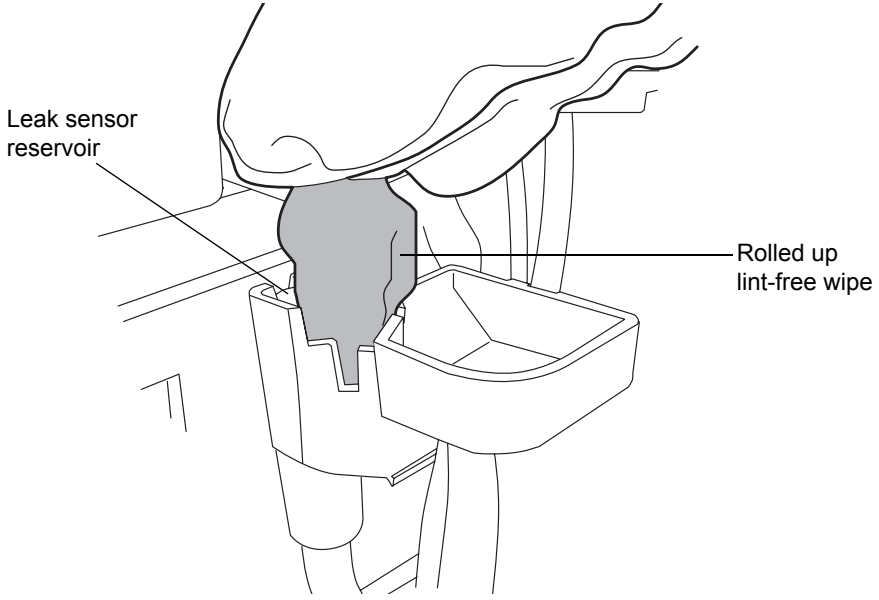


Tip: If the leak sensor cannot be easily manipulated after being removed from its reservoir, detach the connector from the front of the instrument (see page 1-42).

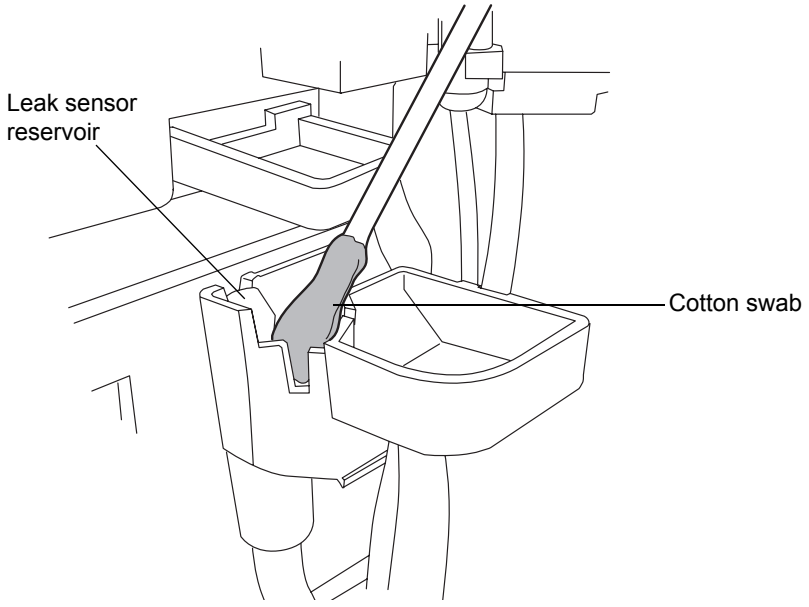
8. Use a nonabrasive, lint-free wipe to dry the leak sensor prism.



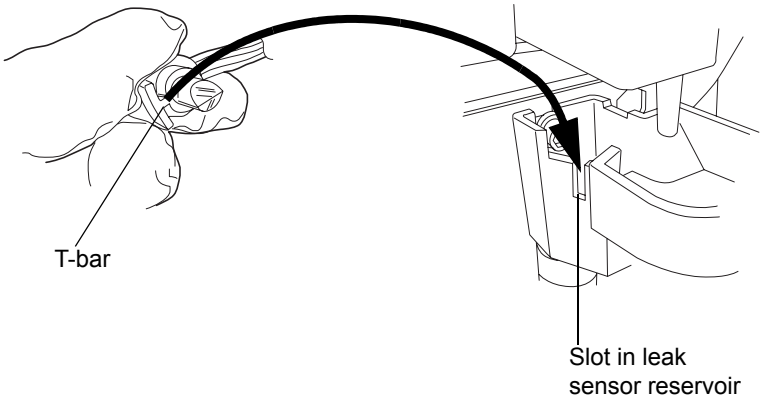
9. Roll up a nonabrasive, lint-free wipe, and use it to absorb the liquid from the leak sensor reservoir and its surrounding area.

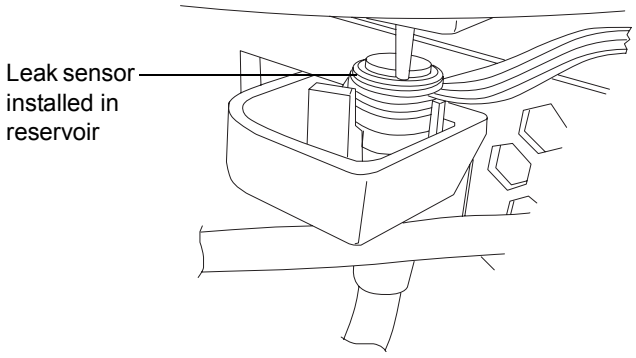


10. With a cotton swab, absorb any remaining liquid from the corners of the leak sensor reservoir and its surrounding area.



11. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





12. In the ACQUITY UPLC Console, select Sample Manager from the system tree.
13. In the sample manager information window, click Control > Reset SM to reset the sample manager.

Resolving column heater leak sensor errors (door fully opened)

After approximately 1.5 mL of liquid accumulates in the column heater's leak sensor reservoir, an alarm sounds, indicating that the leak sensor detected a leak.

Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Caution: To avoid scratching or damaging the leak sensor:

- do not allow buffered solvents to accumulate and dry on it.
- do not submerge it in a cleaning bath.

Tip: Small column leaks can be undetectable because they can evaporate before reaching the leak sensor reservoir.

Required materials

- Chemical-resistant, powder-free gloves
- Cotton swabs
- Nonabrasive, lint-free wipes

To resolve a leak sensor error for a column heater with its door fully open:

1. View the Leak Sensors dialog box in the ACQUITY UPLC Console to determine which of the sample manager's two leak sensors detected a leak.

   Rules:

   - The error message "Leak Detected" means the sample manager leak sensor, on the sample manager's bottom right corner, detected the leak.
   - The error message "Leak Detected (Column)" means the column heater leak sensor, on the sample manager's top right corner, detected the leak.

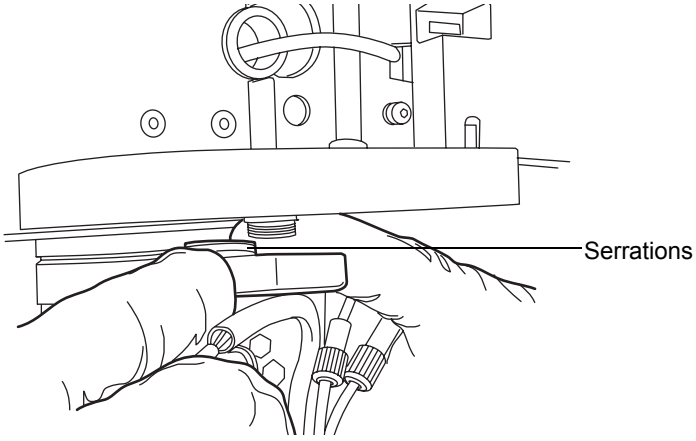
2. Locate the source of the leak, and make the repairs necessary to stop the leak.

Tip: Liquid from a detector leak can sometimes accumulate in the column heater leak sensor reservoir and cause the column heater leak sensor alarm to sound. Always inspect the detector when attempting to locate the source of a leak.

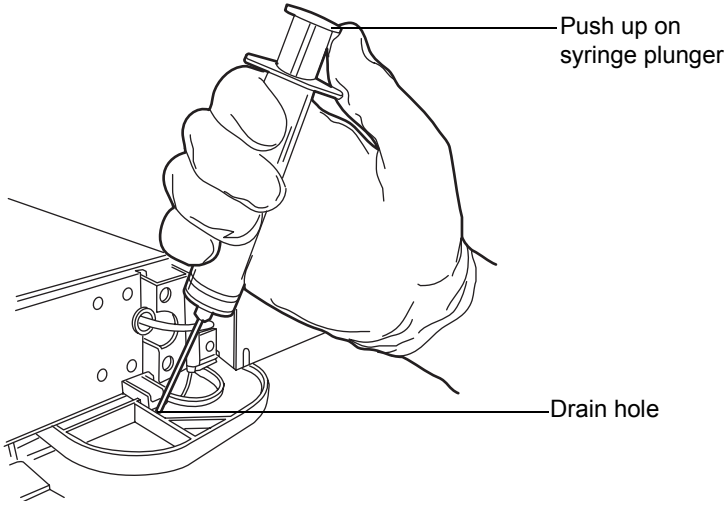
3. Slide out the sample manager fluidics tray.

Caution: To avoid damaging the leak sensor, do not grasp it by the ribbon cable.

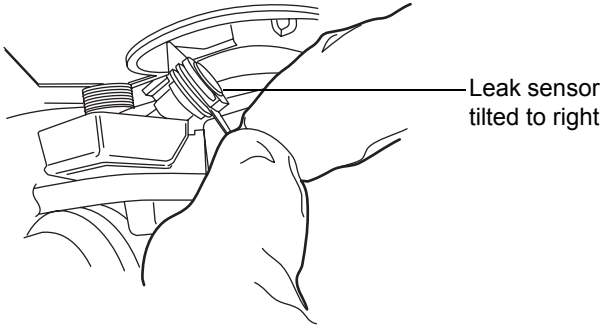
4. Using one finger from each hand, remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.



Alternative: Leave the leak sensor in place, use the syringe included the binary solvent manager Startup Kit to remove the liquid from the leak sensor reservoir, and proceed to step 9.

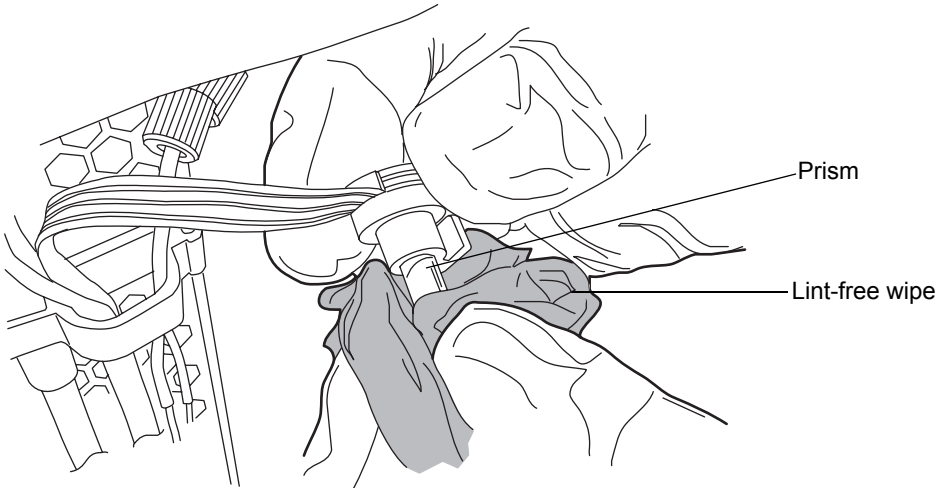


5. Tilt the leak sensor to the right and remove it from under the drip tray.

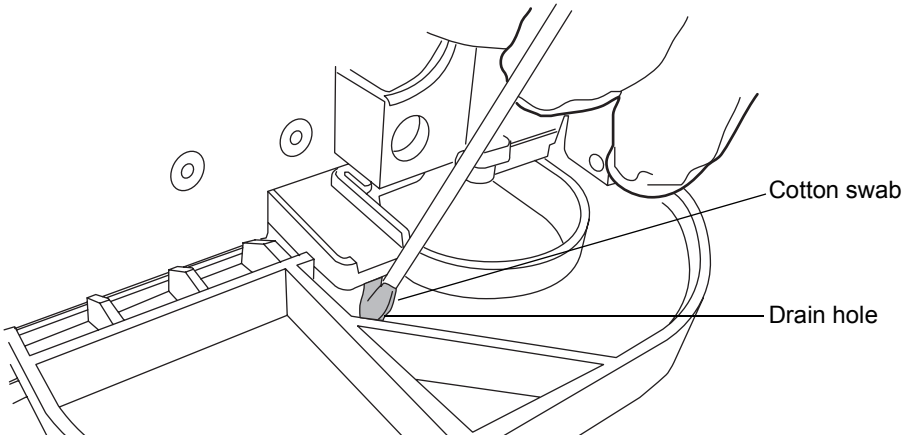


Tip: If the leak sensor cannot be easily manipulated after being removed from its reservoir, detach the connector from the front of the instrument (see page 1-42).

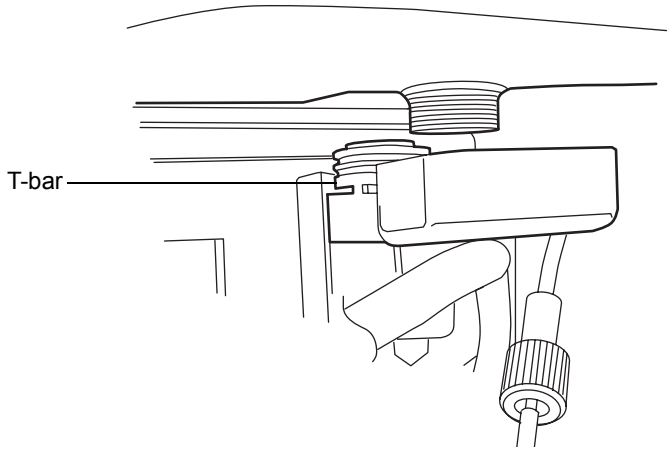
6. Use a nonabrasive, lint-free wipe to dry the leak sensor prism.



7. Insert a cotton swab through the drip tray drain hole and absorb any remaining liquid from the leak sensor reservoir and its surrounding area.



8. Using one finger from each hand, align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.



9. Slide the fluidics tray closed.
10. In the ACQUITY UPLC Console, select Sample Manager from the system tree.
11. In the sample manager information window, click Control > Reset SM to reset the sample manager.

Resolving column manager leak sensor errors

After approximately 1.5 mL of liquid accumulates in the column manager's leak sensor reservoir, an alarm sounds, indicating that the leak sensor detected a leak.

Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Caution: To avoid scratching or damaging the leak sensor:

- do not allow buffered solvents to accumulate and dry on it.
- do not submerge it in a cleaning bath.

Tip: Small column leaks can be undetectable because they can evaporate before reaching the leak sensor reservoir.

Required materials

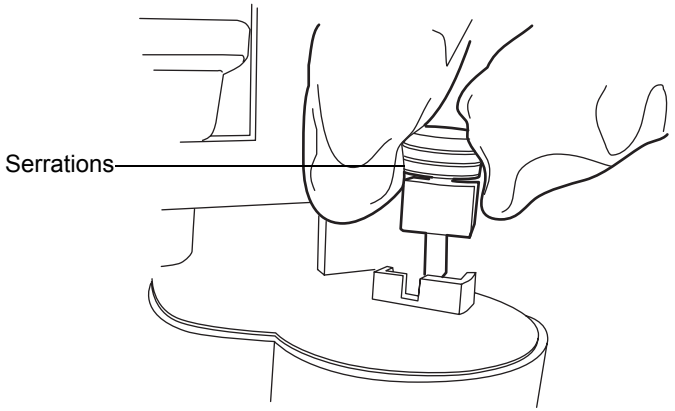
- Chemical-resistant, powder-free gloves
- Cotton swabs
- Nonabrasive, lint-free wipes

To resolve a column manager leak sensor error:

1. View the Leak Sensors dialog box in the ACQUITY UPLC Console to confirm that the column manager leak sensor detected a leak.
2. Locate the source of the leak, and make the repairs necessary to stop the leak.

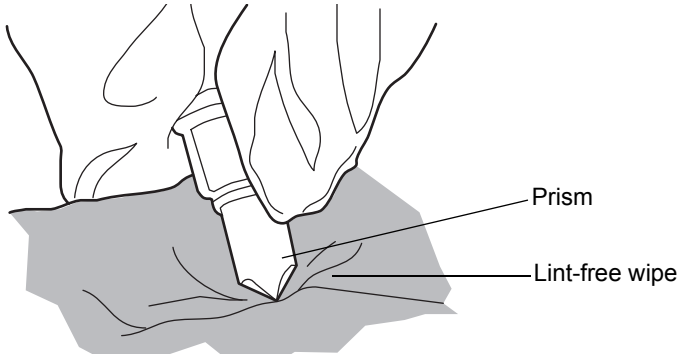
Caution: To avoid damaging the leak sensor, do not grasp it by the ribbon cable.

3. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.



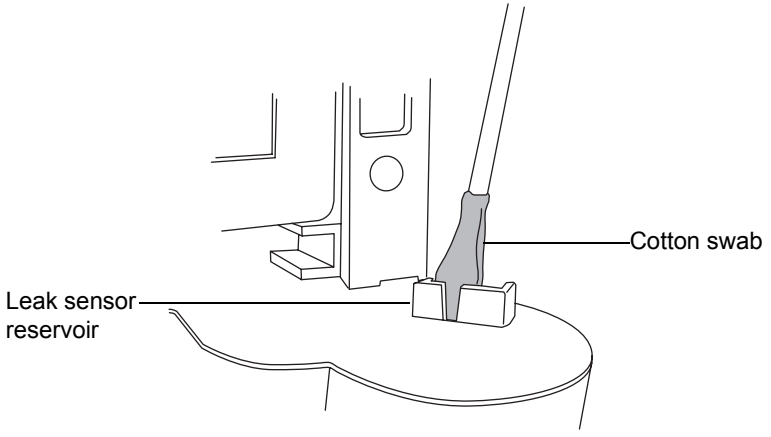
Tip: If the leak sensor cannot be easily manipulated after being removed from its reservoir, detach the connector from the front of the instrument (see page 1-49).

4. Use a nonabrasive, lint-free wipe to dry the leak sensor prism.

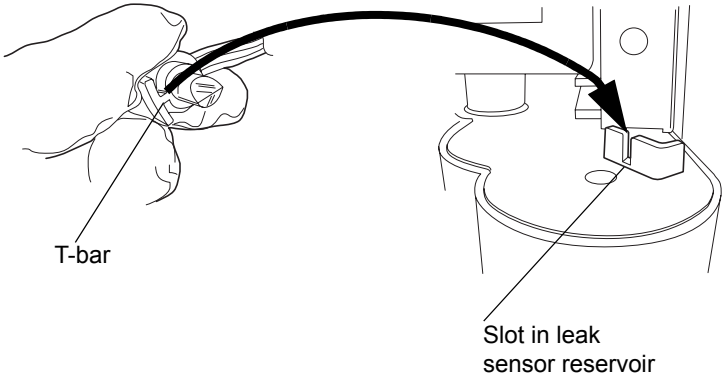


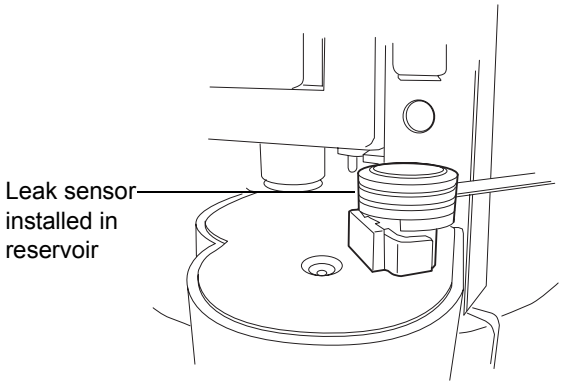
5. Roll up a nonabrasive, lint-free wipe, and use it to absorb the liquid from the leak sensor reservoir and its surrounding area.

6. With a cotton swab, absorb any remaining liquid from the corners of the leak sensor reservoir and its surrounding area.

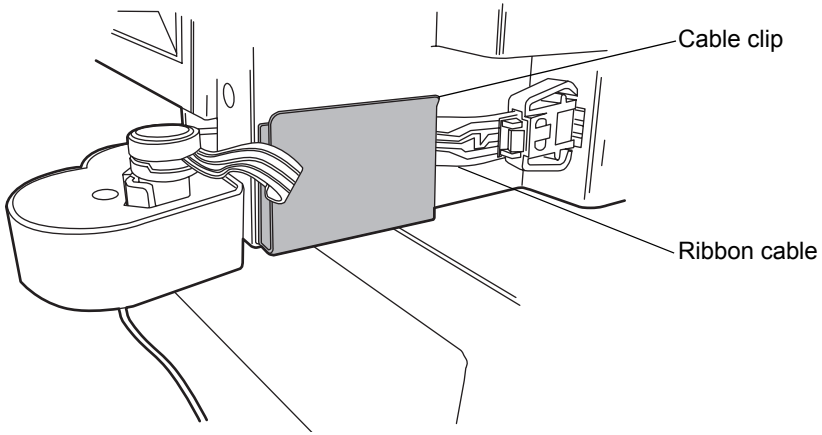


7. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





8. Ensure the ribbon cable is routed behind the cable clip.



9. In the ACQUITY UPLC Console, select Column Manager from the system tree.
10. In the column manager information window, click Control > Reset CM to reset the column manager.

Resolving detector leak sensor errors

After approximately 1.5 mL of liquid accumulates in the detector's leak sensor reservoir, an alarm sounds, indicating that the leak sensor detected a leak.

Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Caution: To avoid scratching or damaging the leak sensor:

- do not allow buffered solvents to accumulate and dry on it.
- do not submerge it in a cleaning bath.

Required materials

- Chemical-resistant, powder-free gloves
- Cotton swabs
- Nonabrasive, lint-free wipes

To resolve a detector leak sensor error:

1. View the Leak Sensors dialog box in the ACQUITY UPLC Console to confirm that the detector leak sensor detected a leak.

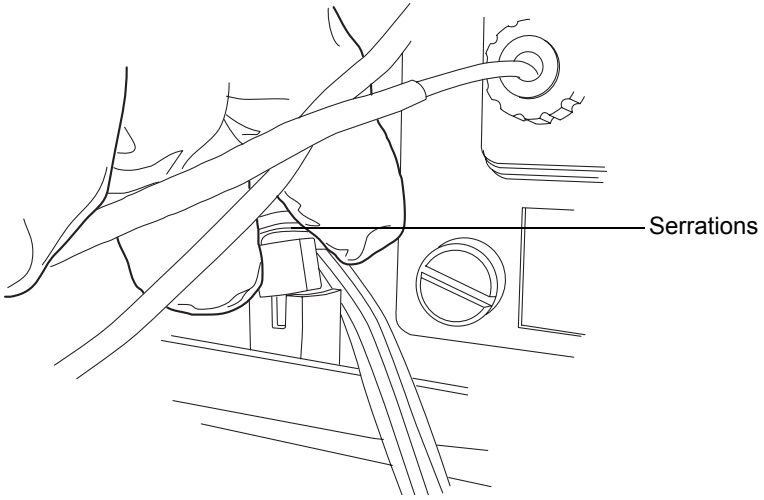
   Tip: If a leak was detected, a "Leak Detected" error message appears.

2. Open the detector door, gently pulling its right edge toward you.

3. Locate the source of the leak, and make the repairs necessary to stop the leak.

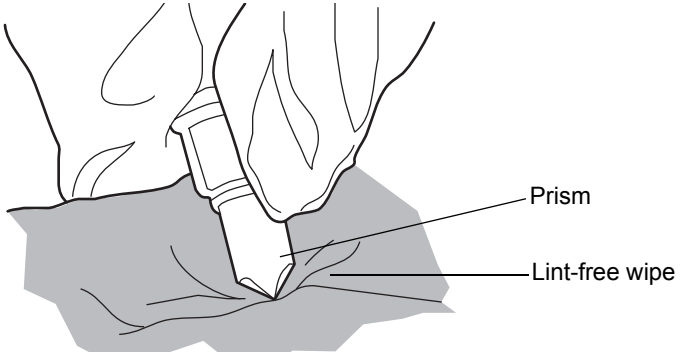
Caution: To avoid damaging the leak sensor, do not grasp it by the ribbon cable.

4. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.

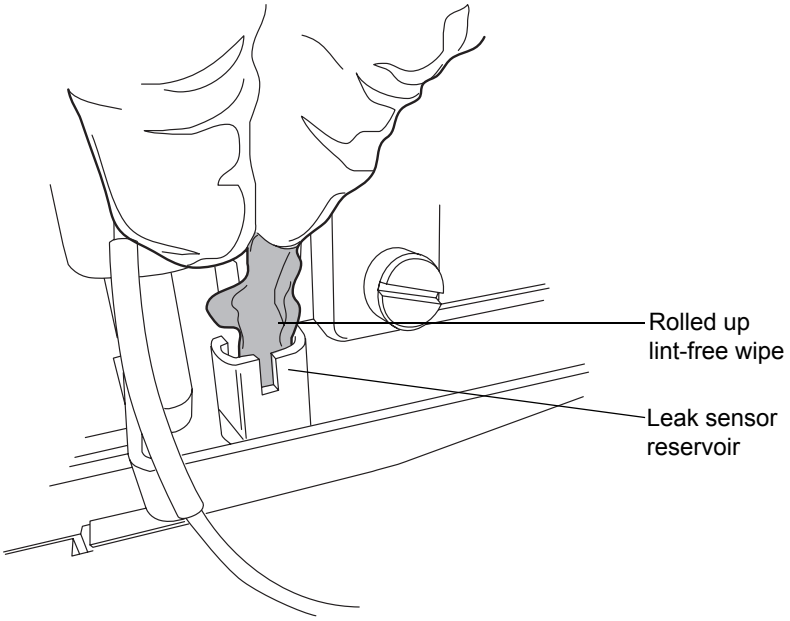


Tip: If the leak sensor cannot be easily manipulated after being removed from its reservoir, detach the connector from the front of the instrument (see page 1-53).

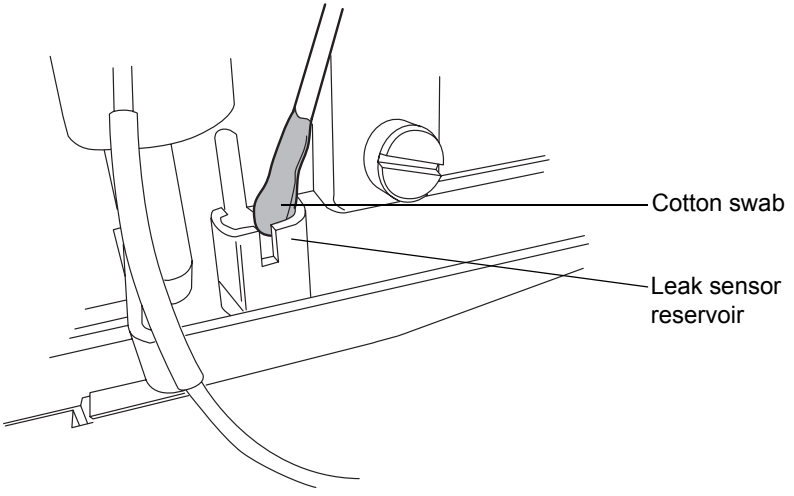
5. Use a nonabrasive, lint-free wipe to dry the leak sensor prism.



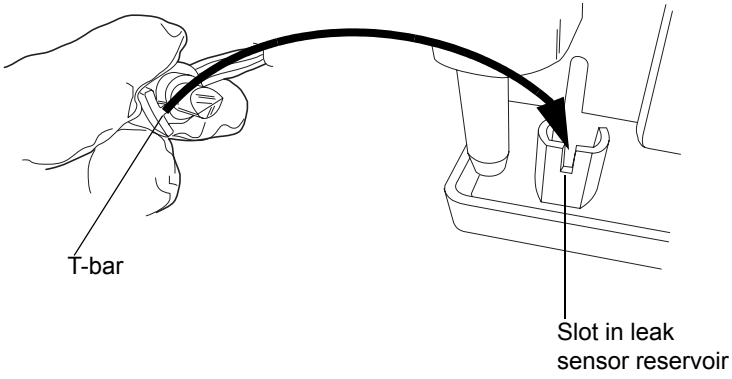
6. Roll up a nonabrasive, lint-free wipe, and use it to absorb the liquid from the leak sensor reservoir and its surrounding area.

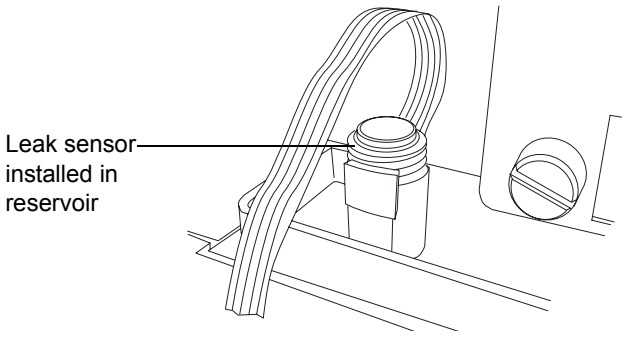


7. With a cotton swab, absorb any remaining liquid from the corners of the leak sensor reservoir and its surrounding area.



8. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





9. In the ACQUITY UPLC Console, select your detector from the system tree.
10. In the detector information window, click Control > Reset to reset the detector.

Replacing the binary solvent manager's leak sensor

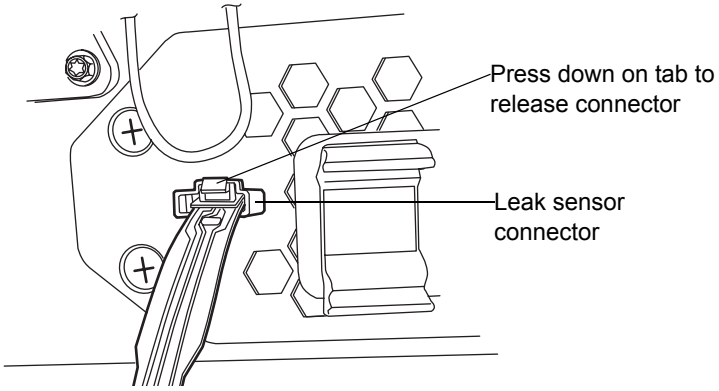
Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Required materials

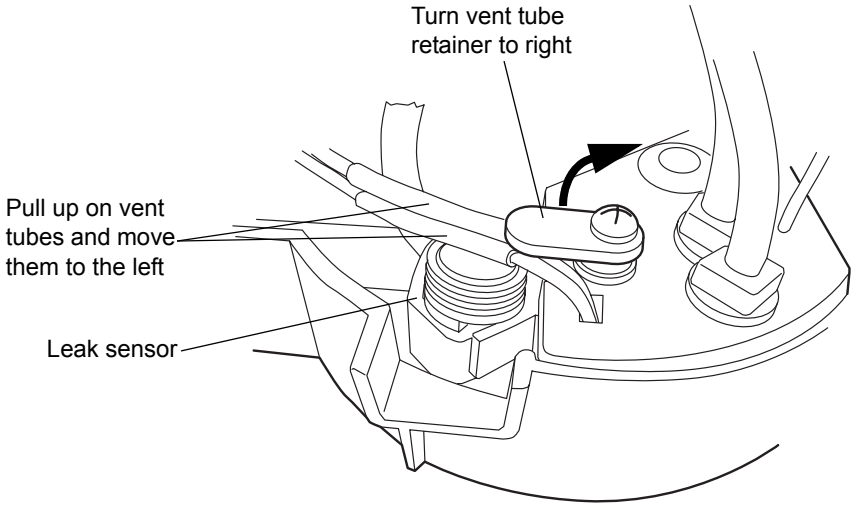
- New leak sensor
- Chemical-resistant, powder-free gloves

To replace the binary solvent manager's leak sensor:

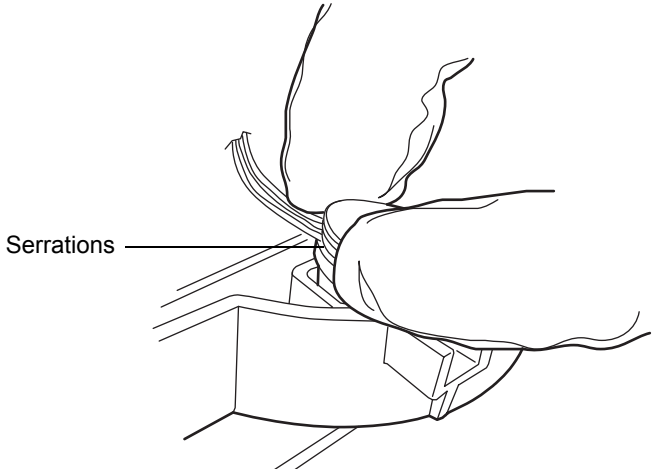
1. Open the binary solvent manager's door, gently pulling its right edge toward you.
2. Detach the leak sensor connector from the front of the instrument.



3. Turn the vent tube retainer to the right, and then lift the A-vent and B-vent tubes out of the drip tray by pulling upward on them and moving them to the left of the leak sensor.

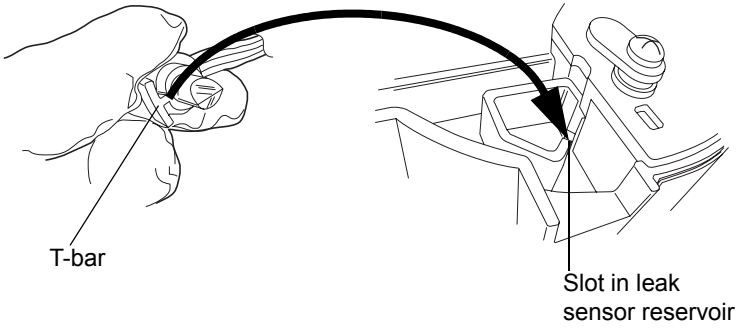


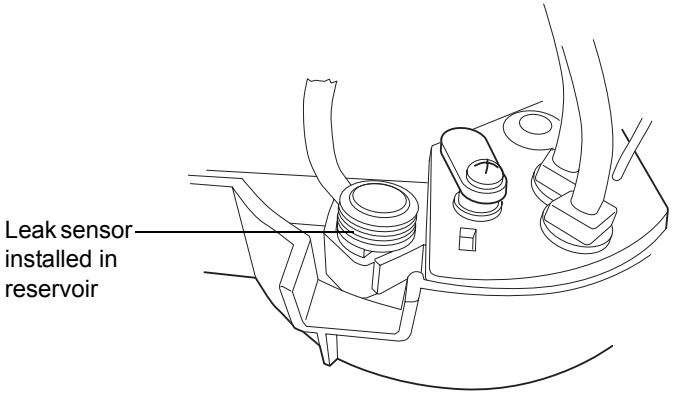
4. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.



5. Unpack the new leak sensor, removing it from its packing material.

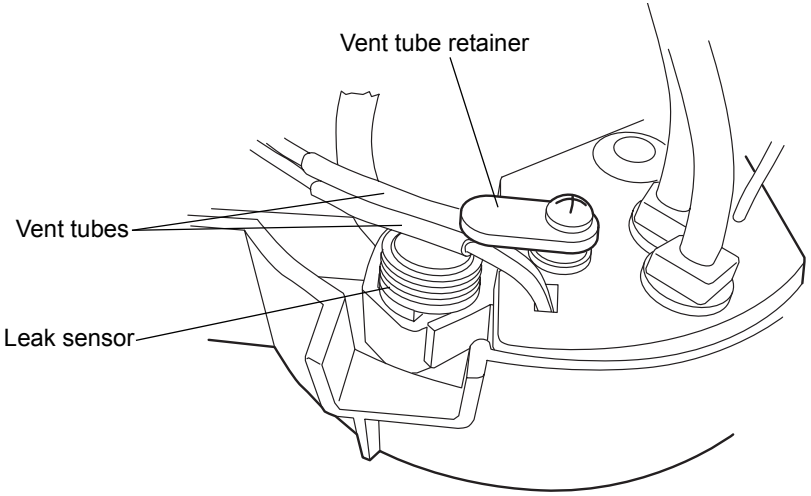
6. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





7. Reinsert the A-vent and B-vent tubes into the drip tray.

8. Turn the vent tube retainer, which holds the A-vent and B-vent tubing in place, to the left.



9. Connect the leak sensor connector to the front of the instrument.
10. In the ACQUITY UPLC Console, select Binary Solvent Manager from the system tree.
11. In the binary solvent manager information window, click Control > Reset BSM to reset the binary solvent manager.

Replacing the sample manager's leak sensor

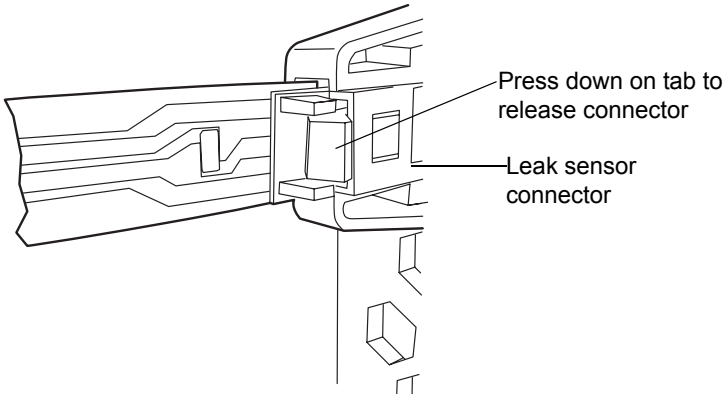
Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Required materials

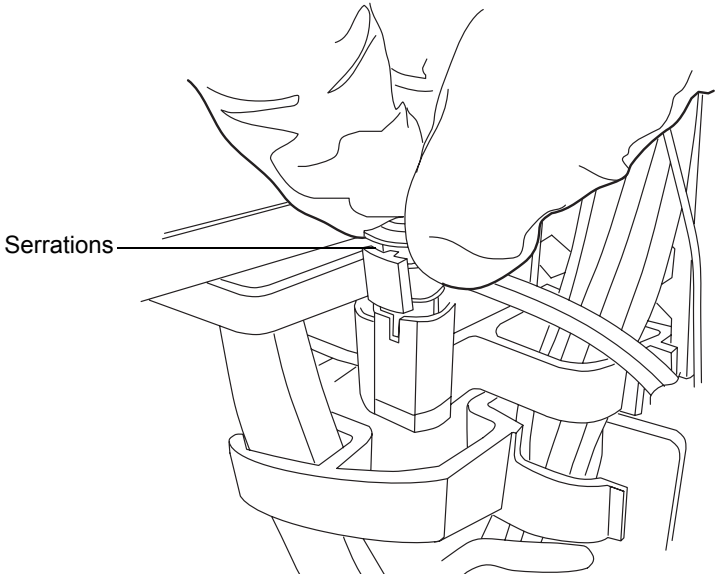
- New leak sensor
- Chemical-resistant, powder-free gloves

To replace the sample manager's leak sensor:

1. Open the sample manager door, gently pulling its right edge toward you.
2. Detach the leak sensor connector from the front of the instrument.

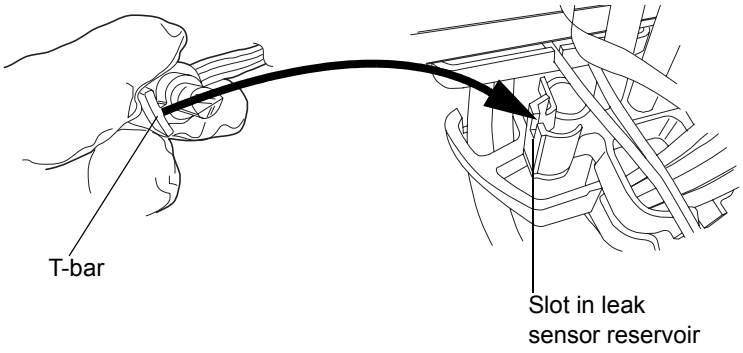


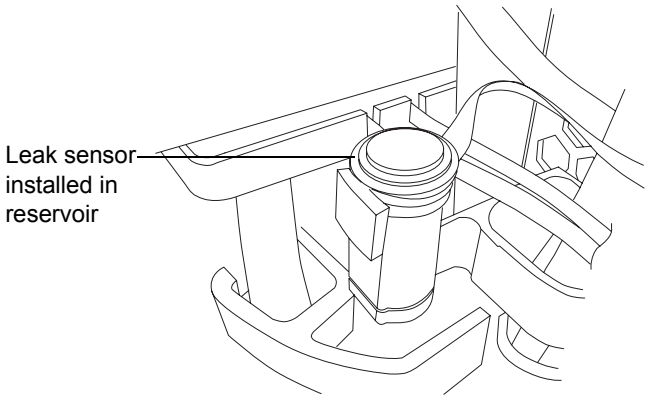
3. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.



4. Unpack the new leak sensor, removing it from its packing material.

5. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





6. Plug the leak sensor connector into the front of the instrument.
7. In the ACQUITY UPLC Console, select Sample Manager from the system tree.
8. In the sample manager information window, click Control > Reset SM to reset the sample manager.

Replacing the column heater's leak sensor

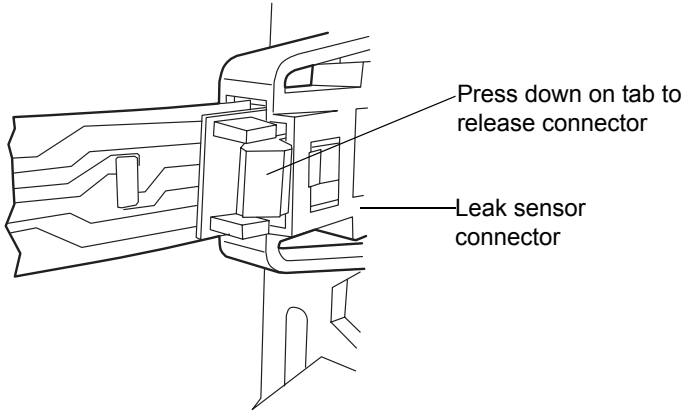
Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Required materials

- New leak sensor
- Chemical-resistant, powder-free gloves

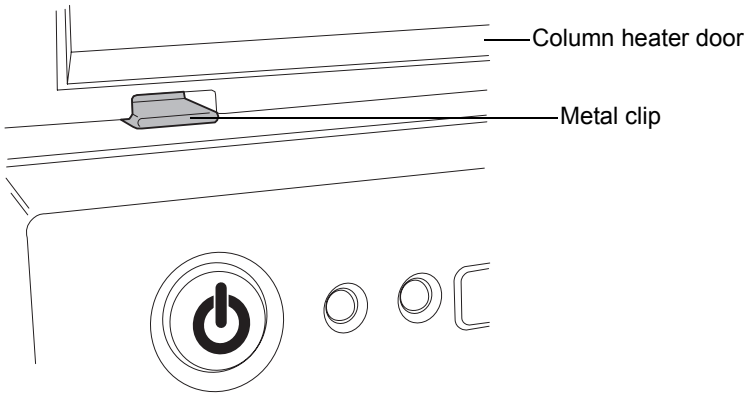
To replace the column heater's leak sensor:

1. Open the sample manager door, gently pulling its right edge toward you.
2. Detach the leak sensor connector from the front of the instrument.

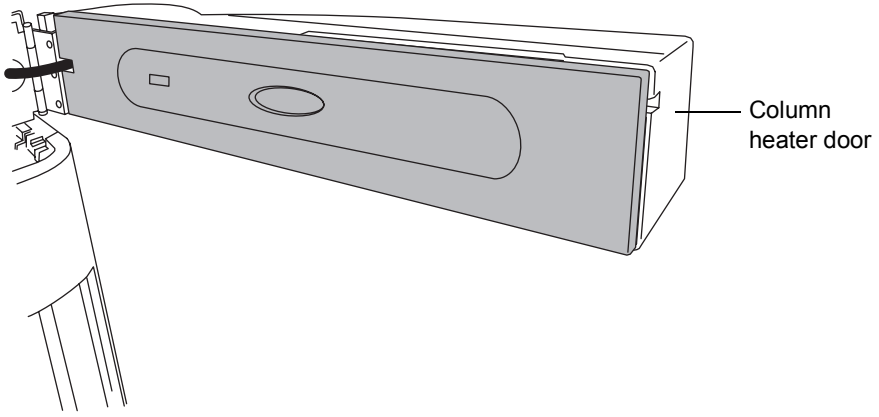


3. Open the column heater door.
4. Remove any solvent lines routed between the column heater door and hinge.

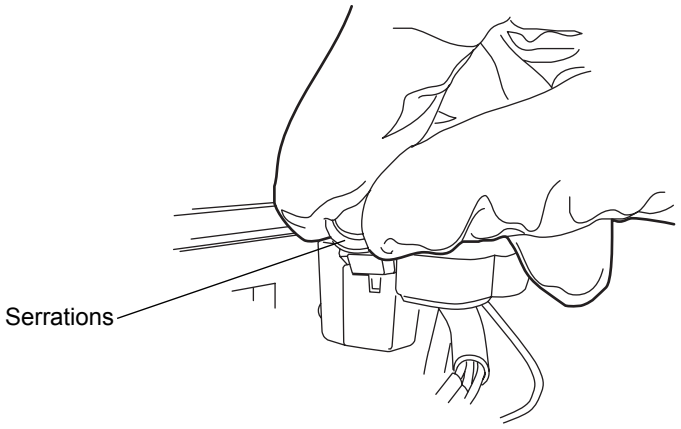
5. Push down on the metal clip at the bottom, left-hand side of the column heater to release the door, and then pull the door toward you.



6. Swing the door fully to the right.

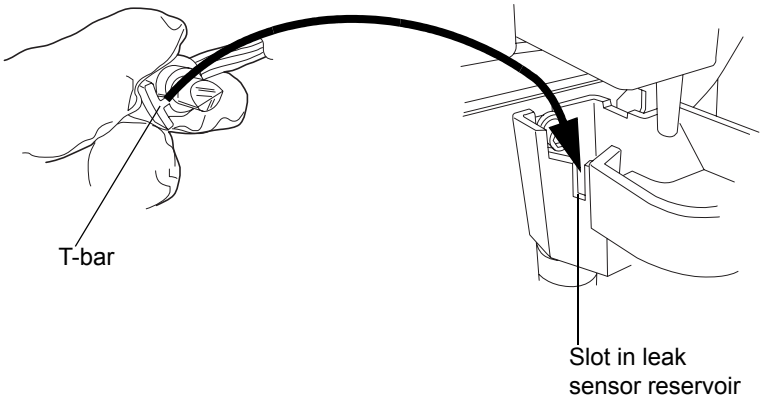


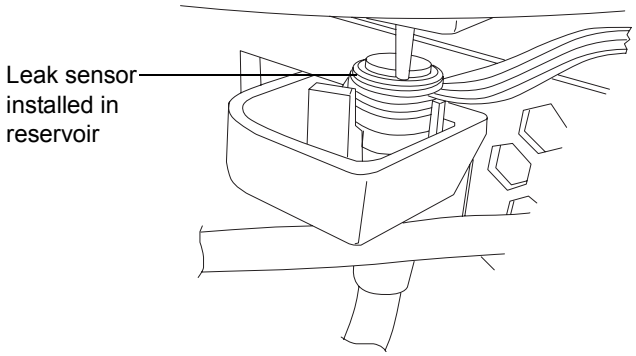
7. Remove the leak sensor from its reservoir by grasping it by its serrations, pulling upward on it, and tilting it to the left.



8. Unpack the new leak sensor, removing it from its packing material.

9. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





10. Plug the leak sensor connector into the front of the instrument.
11. In the ACQUITY UPLC Console, select Sample Manager from the system tree.
12. In the sample manager information window, click Control > Reset SM to reset the sample manager.

Replacing the column heater's leak sensor (door fully opened)

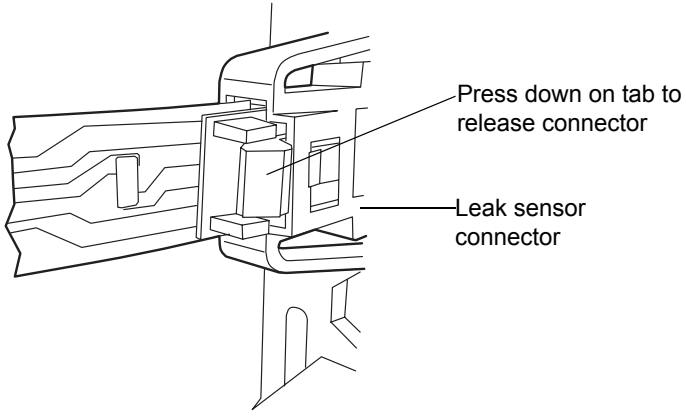
Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Required materials

- New leak sensor
- Chemical-resistant, powder-free gloves

To replace the leak sensor for a column heater with its door fully open:

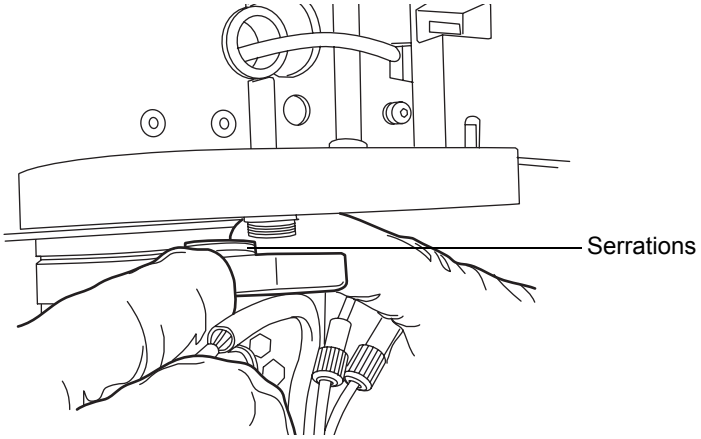
1. Open the sample manager door, gently pulling its right edge toward you.
2. Detach the leak sensor connector from the front of the instrument.



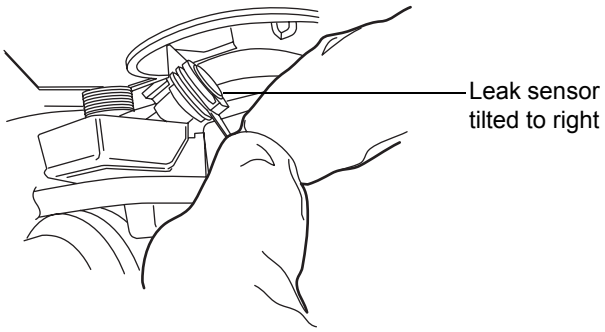
3. Slide out the sample manager fluidics tray.

Caution: To avoid damaging the leak sensor, do not grasp it by the ribbon cable.

4. Using one finger from each hand, remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.

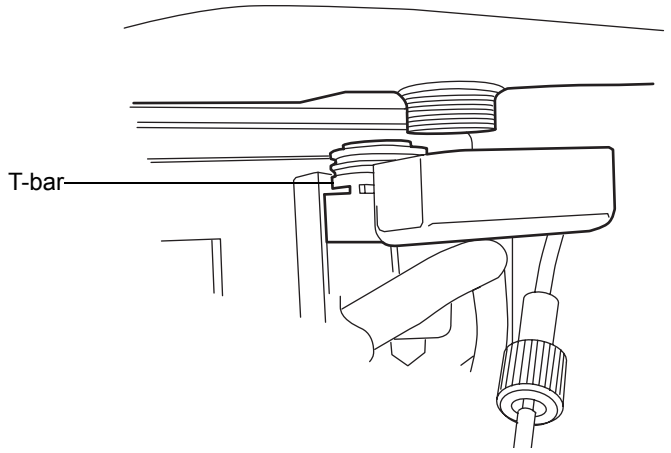


5. Tilt the leak sensor to the right and remove it from under the drip tray.



6. Unpack the new leak sensor, removing it from its packing material.

7. Using one finger from each hand, align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.



8. Plug the leak sensor connector into the front of the instrument.
9. Slide the fluidics tray closed.
10. In the ACQUITY UPLC Console, select Sample Manager from the system tree.
11. In the sample manager information window, click Control > Reset SM to reset the sample manager.

Replacing the column manager's leak sensor

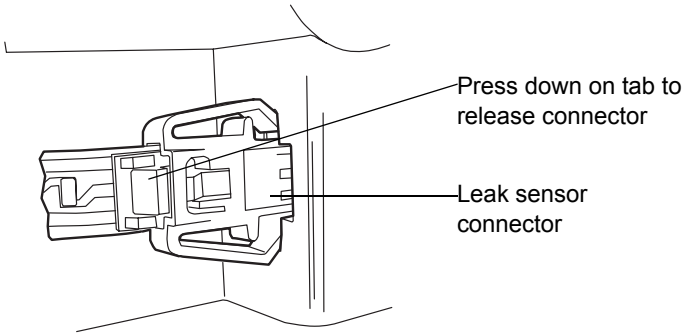
Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Required materials

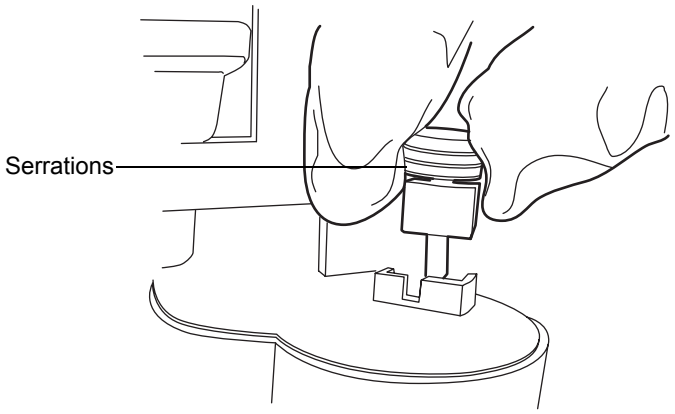
- New leak sensor
- Chemical-resistant, powder-free gloves

To replace the column manager's leak sensor:

1. Detach the leak sensor connector from the front of the instrument.

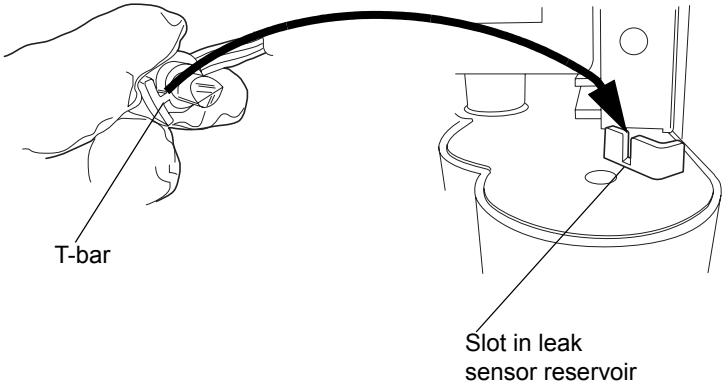


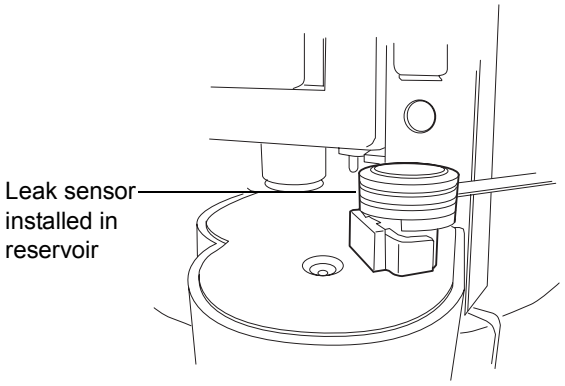
2. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.



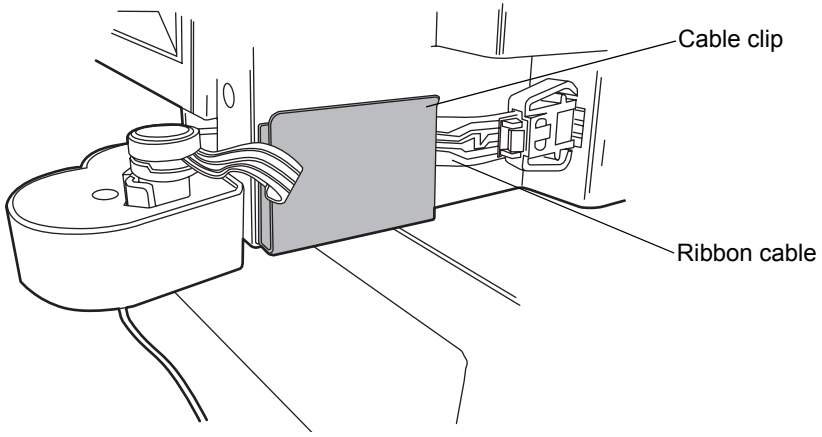
3. Unpack the new leak sensor, removing it from its packing material.

4. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





5. Ensure the ribbon cable is routed behind the cable clip.



6. Plug the leak sensor connector into the front of the instrument.
7. In the ACQUITY UPLC Console, select Column Manager from the system tree.
8. In the column manager information window, click Control > Reset CM to reset the column manager.

Replacing the detector's leak sensor

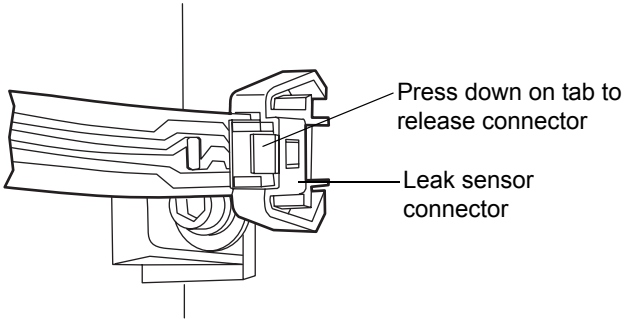
Warning: The leak sensor can be contaminated with biohazardous and/or toxic materials. Always wear chemical-resistant, powder-free gloves when performing this procedure.

Required materials

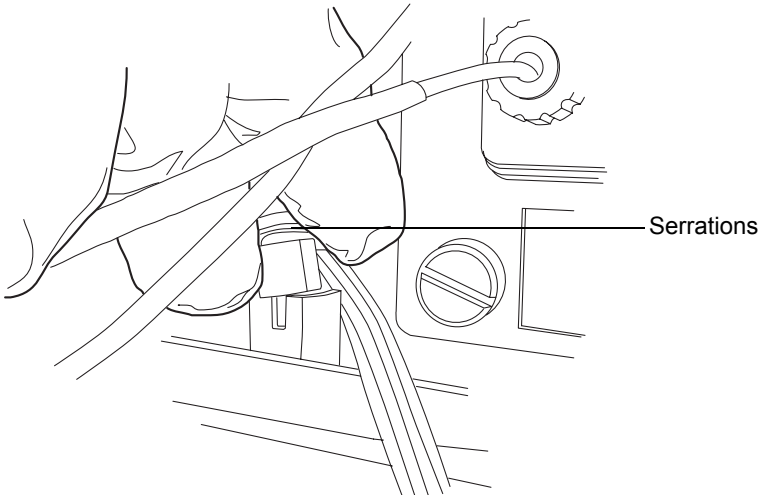
- New leak sensor
- Chemical-resistant, powder-free gloves

To replace the detector leak sensor:

1. Open the detector door, gently pulling its right edge toward you.
2. Detach the leak sensor connector from the front of the instrument.

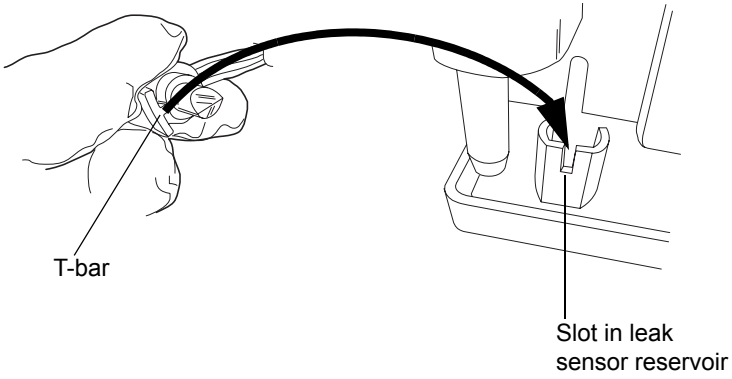


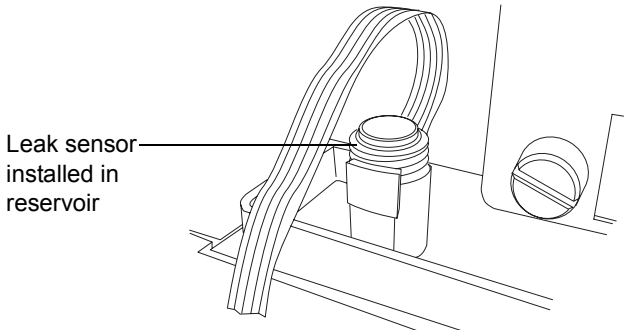
3. Remove the leak sensor from its reservoir by grasping it by its serrations and pulling upward on it.



4. Unpack the new leak sensor, removing it from its packing material.

5. Align the leak sensor's T-bar with the slot in the side of the leak sensor reservoir, and slide the leak sensor into place.





6. Plug the leak sensor connector into the front of the instrument.
7. In the ACQUITY UPLC Console, select your detector from the system tree.
8. In the detector information window, click Control > Reset to reset the detector.