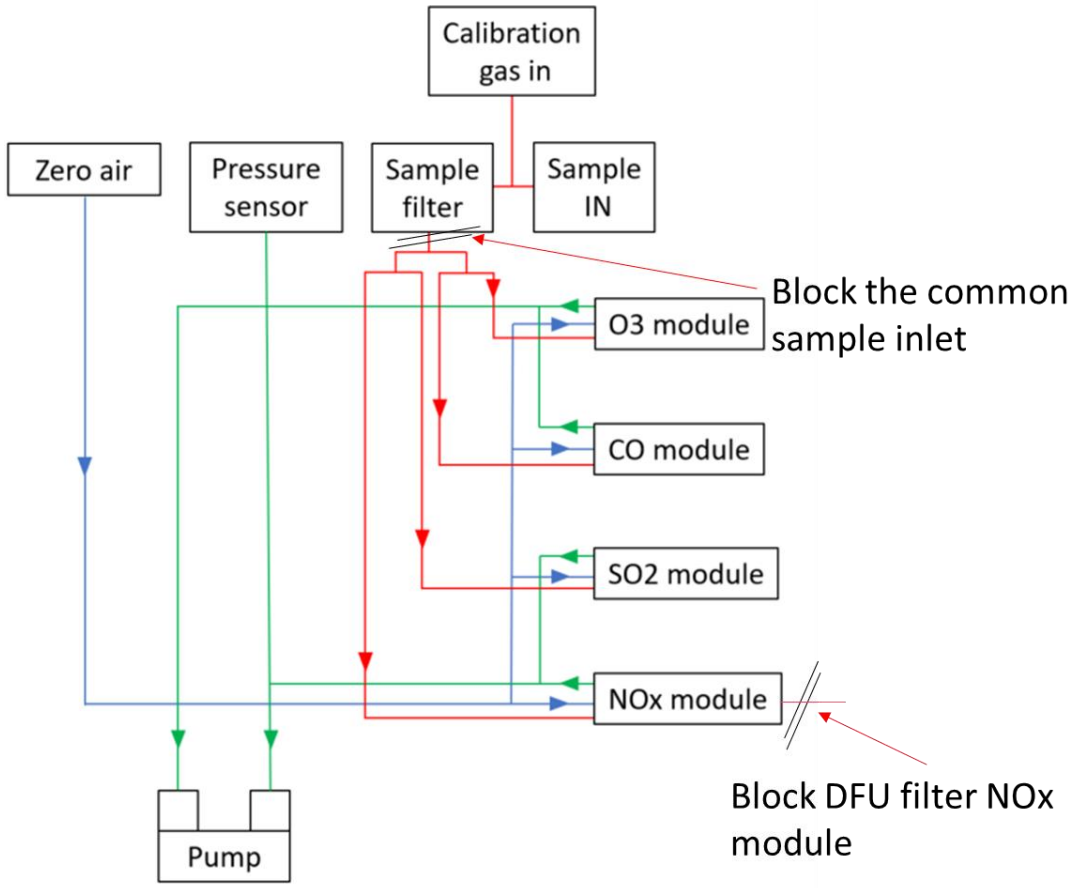
Base Unit - Leak checking the Airpointer and the modules

The principle of the leak check is to block all the air inlets, so the pump creates a vacuum in the system, and all the flows go down to zero. If there is a leak somewhere, the flows will not go down to zero and the pressure will still be higher in some modules than near the pump (PressPump parameter).

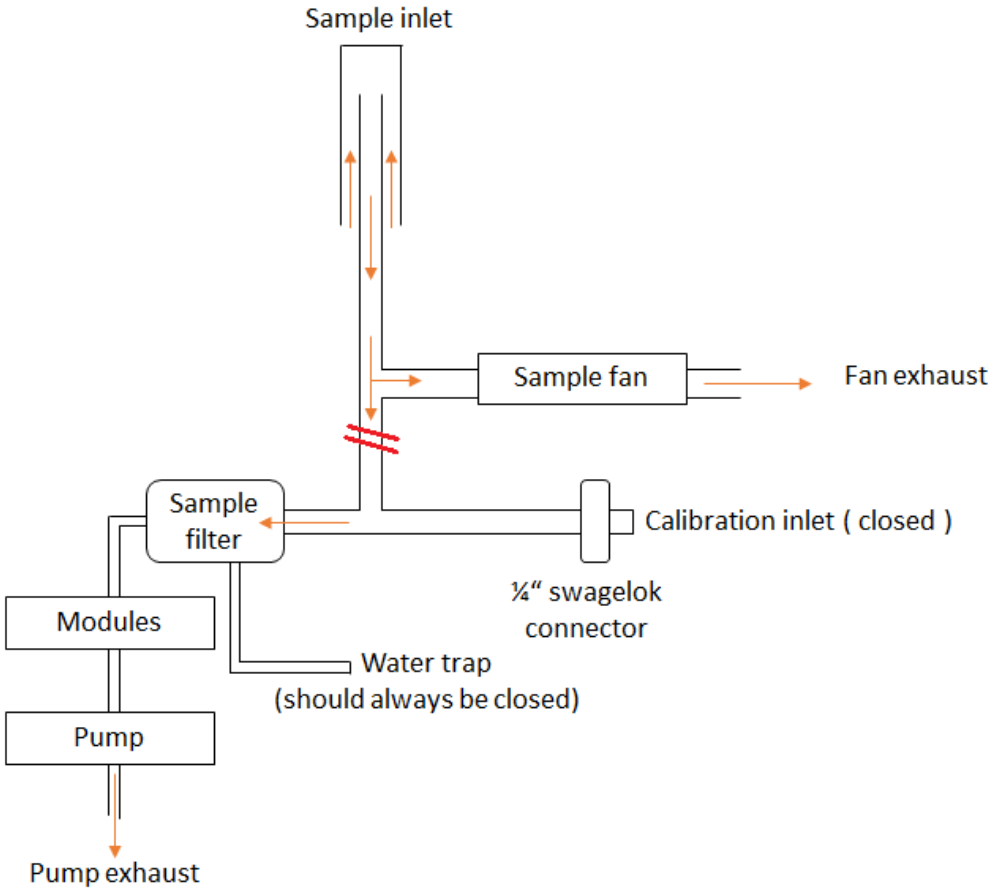


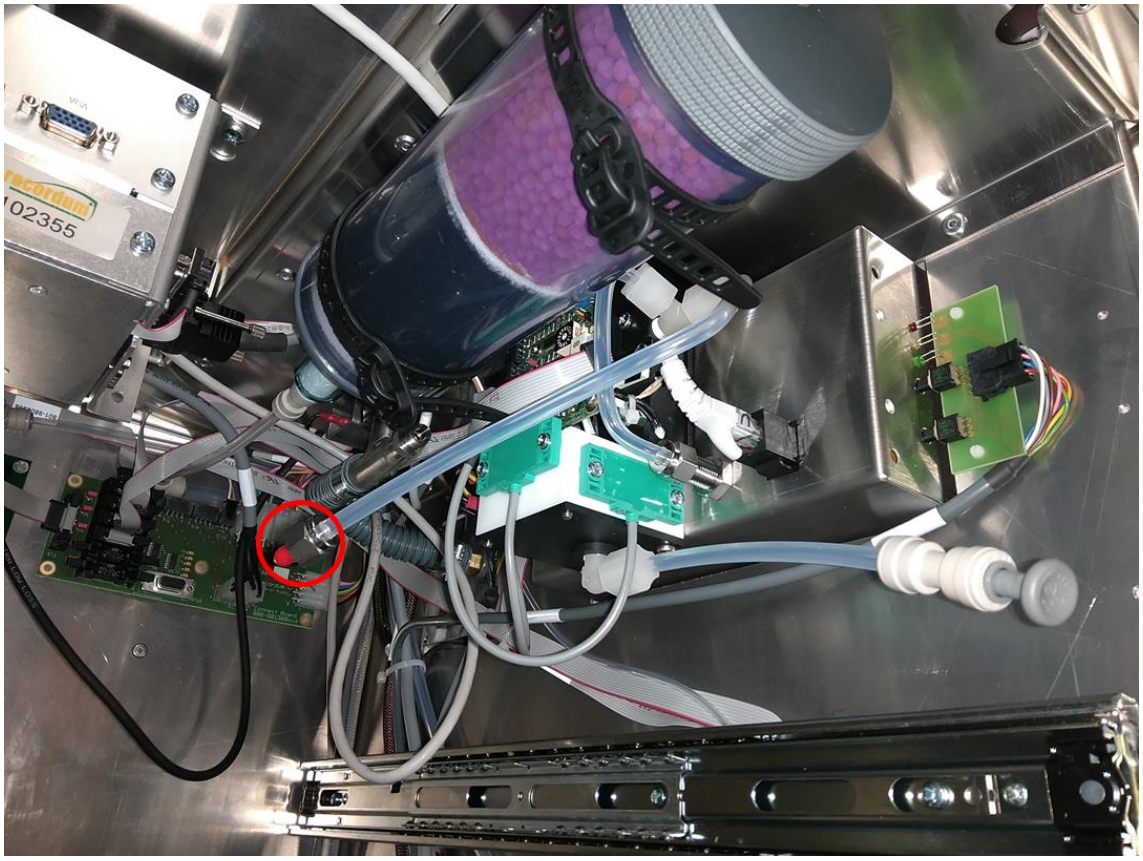
1- Tools you need

- leak checking tool [790-000200]
- teflon tube 1/4″ [800-301502]
- fittings 1/4″ (Stainless steel and Push-fit) [800-301006, 800-301108, 800-301109, and 800-301045]
- lids 1/4″ (Stainless steel and Push-fit) [800-301057 and 800-301054]
- lids 1/8″ Stainless steel [800-301080]
- rubber lids 1/4″ and 1/8″
- wrenches (7/16″, 1/2″, 9/16″ or adjustable)

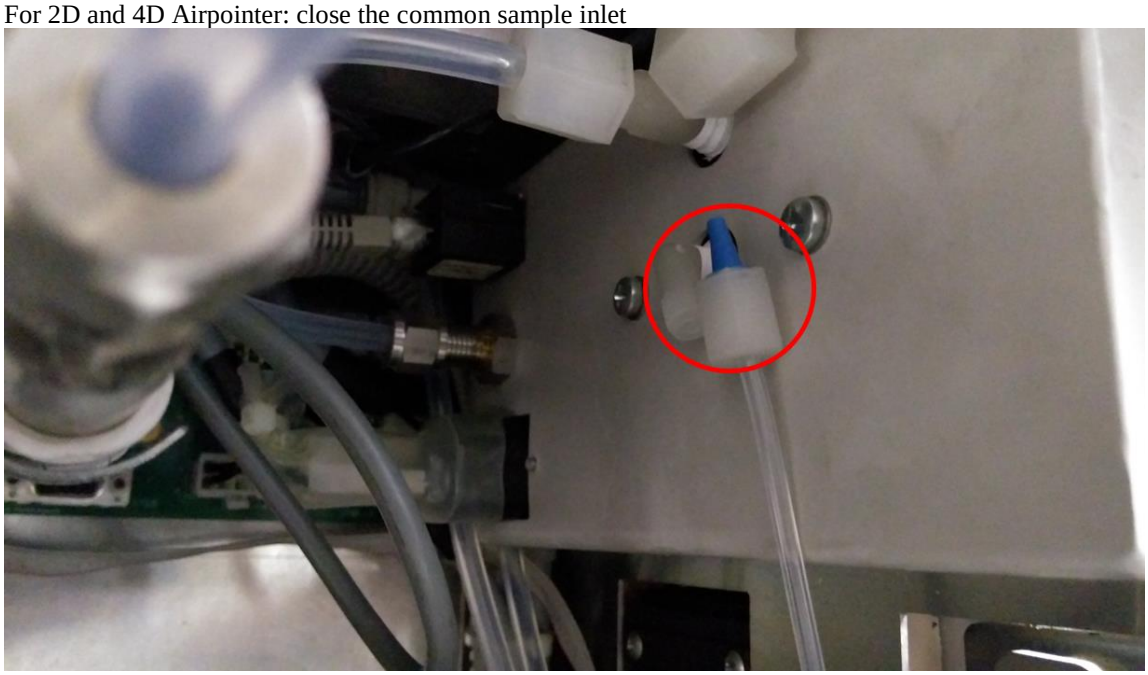
2- Block the common sample inlet

For the HC Airpointer: close the calibration inlet and the sample inlet bypass





For 2D and 4D Airpointer: close the common sample inlet



3- Block the DFU filter NOx module inlet

4- Check the values of pressure and flows in Linsens

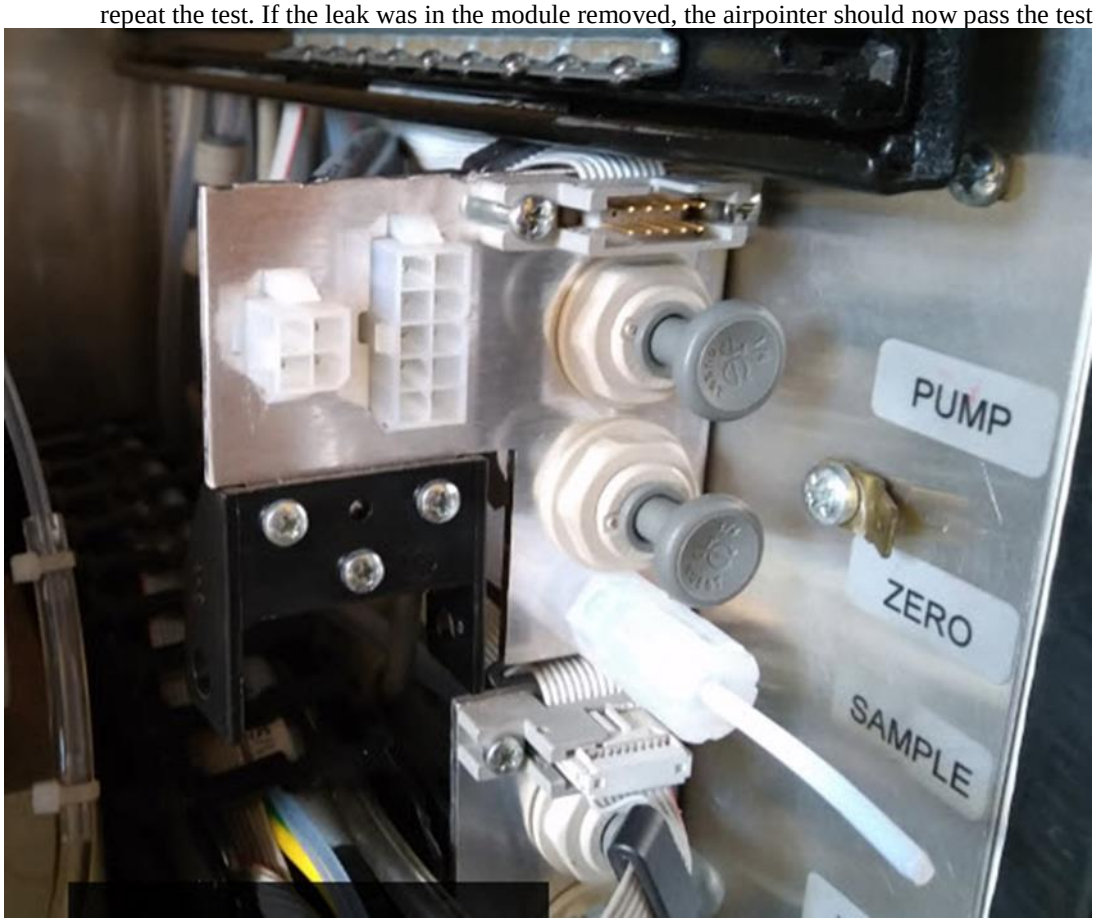
Pressures identical
(+/-10%)

PMTSigNO	615.8	Hz	PMTSigNOx	638.9	Hz
PMTSigAuto0	672.2	Hz			
PressNO	236.9	mbar	RCellPressNO	251.5	mbar
PressNOx	236.5	mbar	RCellPressNOx	251.3	mbar
FlowNOx	-1.0	ml/min	FlowO3Gen	-5.6	ml/min
Fan_NOx	2910	rpm	HVPS_NOx	-643	V
PMTTemp	-2.0	°C	PowerToPeltier	68.7	%
MolyT	312.3	°C	PowerToMoly	40.5	%
RCellT	50.3	°C	PowerToRCell	38.4	%

Flows close to 0 ml/min

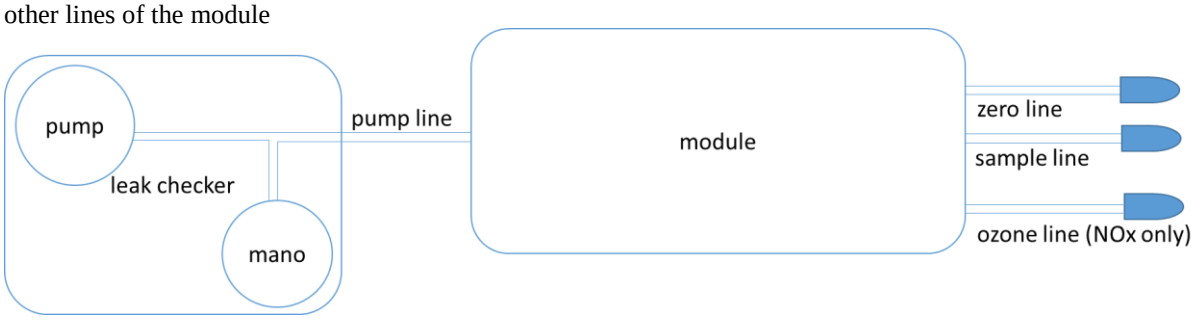
When the inlets are capped, the pressures should be identical in all the modules too, and the flows all close to 0.
NB: Make sure the modules are in normal sampling mode, and not in span or zero check

5- If you detect a leak, you can remove a module, cap its inlets on the right handside of the airpointer, and repeat the test. If the leak was in the module removed, the airpointer should now pass the test

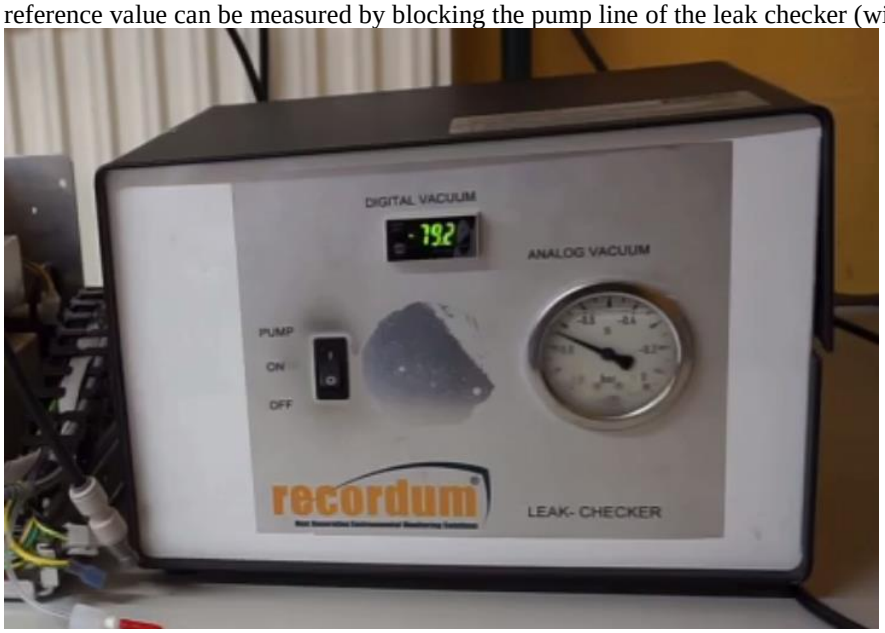


6- Once the faulty module has been identified, the next step is to find the leak within the module.

Step 1- Connect the leak checker (or a pump and a manometer) at the pump line of the module, and cap all the other lines of the module



Step 2- Turn on the pump: the pressure on the manometer should go down close to 0, because the pump sucks the air and creates a vacuum: no air can enter; the pump is not strong enough to create a high vacuum, but typically below 200 mbar (200 mbar ≈ -80 hPa on the digital vacuum display of the leak checking tool). The reference value can be measured by blocking the pump line of the leak checker (without any module connected).



Step 3- When the pressure is stable, turn off the pump: the pressure on the manometer should stay at the same value; if it goes back to atmospheric pressure, there is a leak somewhere