

Technical Note No. 068

AQSync NOx Modules Leak Check

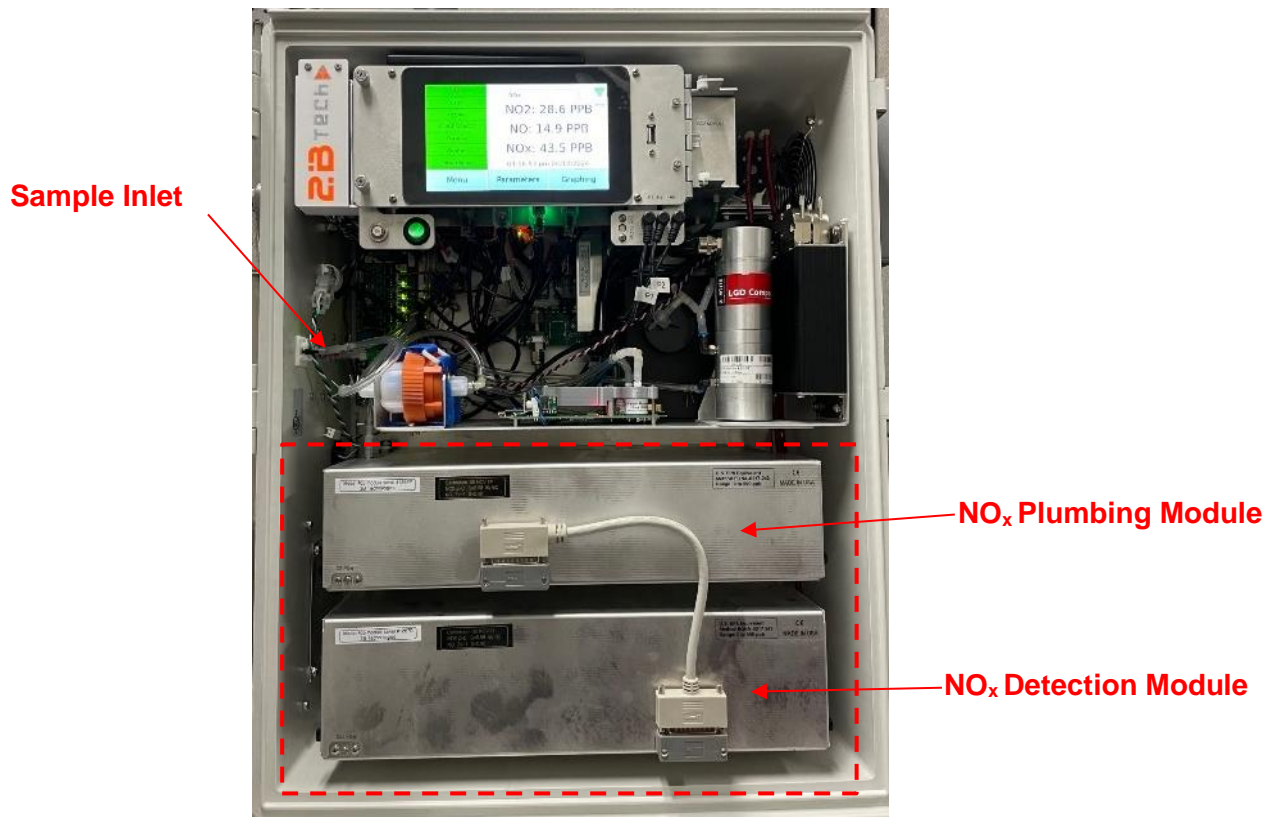
Date: 03/07/2025

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Summary:

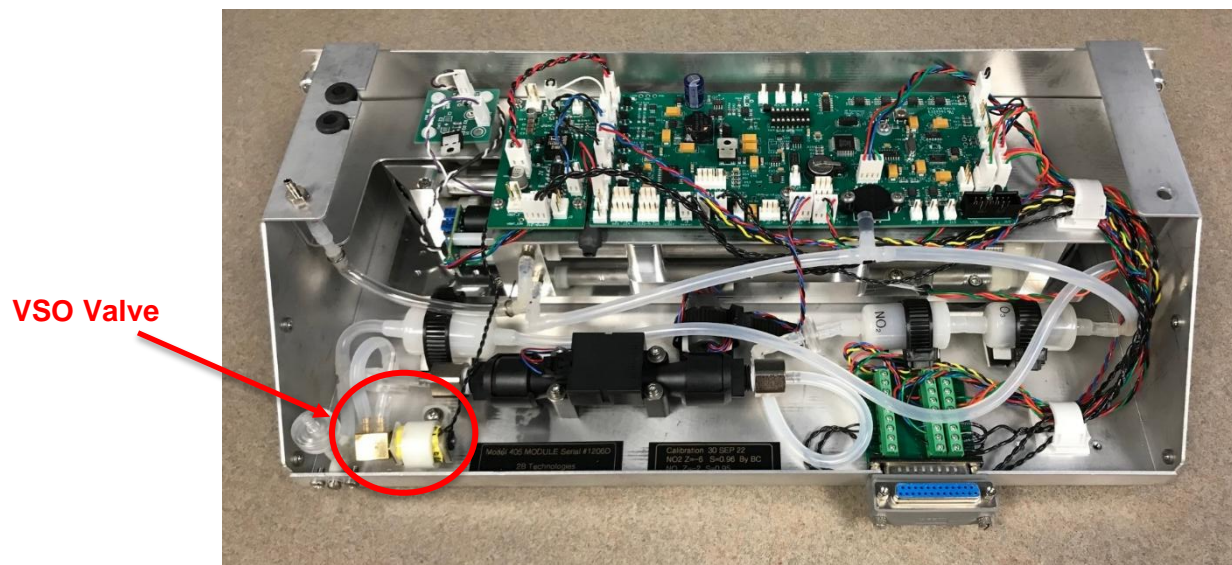
This procedure shows how to check the AQSync 405 (NOx) system for leaks.

Before starting, note the following locations in the AQSync as they will be referred to in this tech note. The location of the “Detection” and “Plumbing” modules, and Sample Inlet are referenced below:

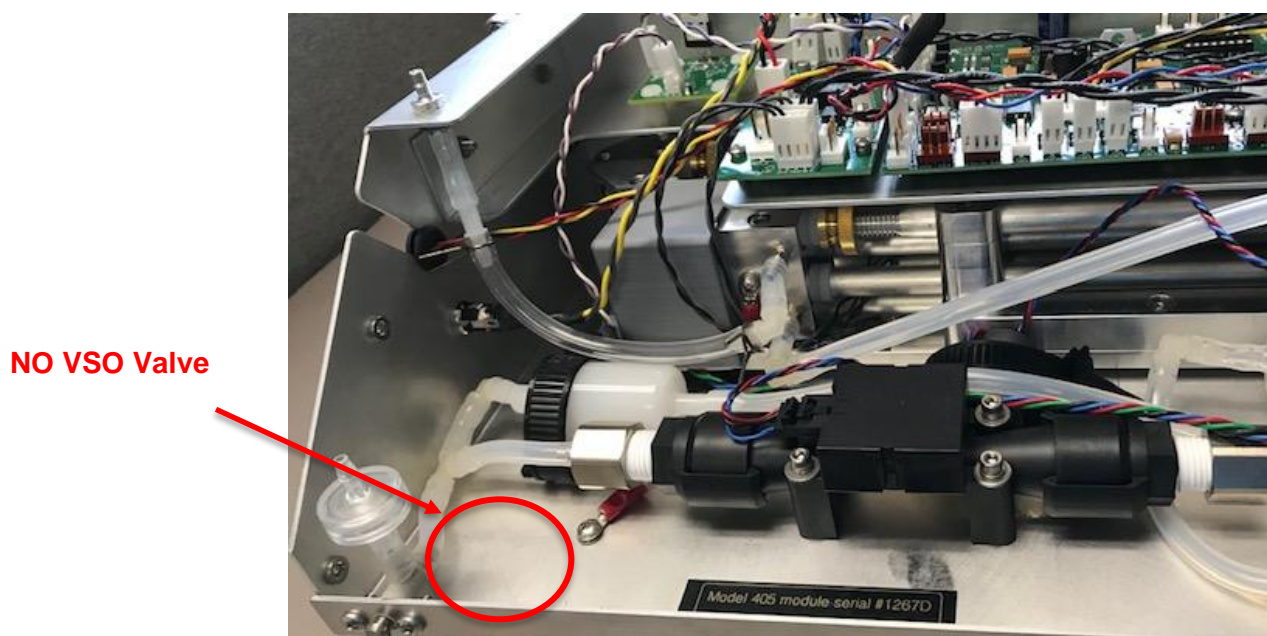


In addition, there are two versions of the Detection Module that have slightly different plumbing.

Version 1 (with VSO valve):



Version 2 (without VSO valve):



Tools/Materials Needed

- (2) Short lengths of 1/8" (3mm) ID silicon tubing
- (3) Tubing plugs (large fastener, Y fitting with tubing, or other) *

*See step 1b for examples

Procedure

- 1) Install plugs. **Turn off AQSync before proceeding.**
 - a) For version 1 Detection Module: Remove the cover from the detection module. The lid is held on by four thumb screws, two on each side. Use a short length of tubing to connect the open port on the VSO to the needle valve. This plugs both outlets.

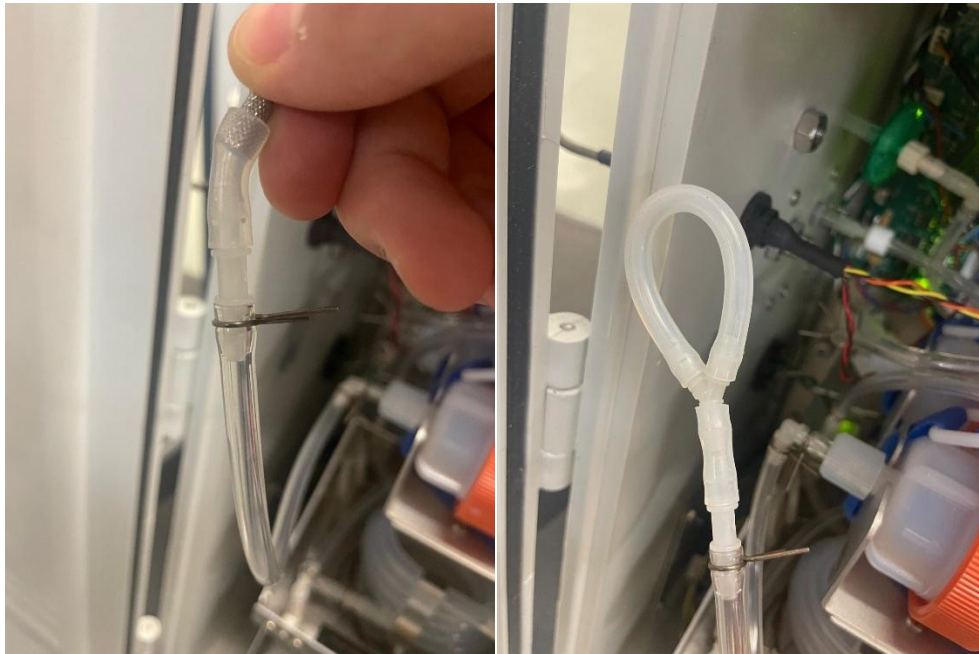


NOx Detection module plug

For version 2 Detection Module: Remove the cover in the same way. Use a plug or Y fitting with tubing to plug the needle valve.



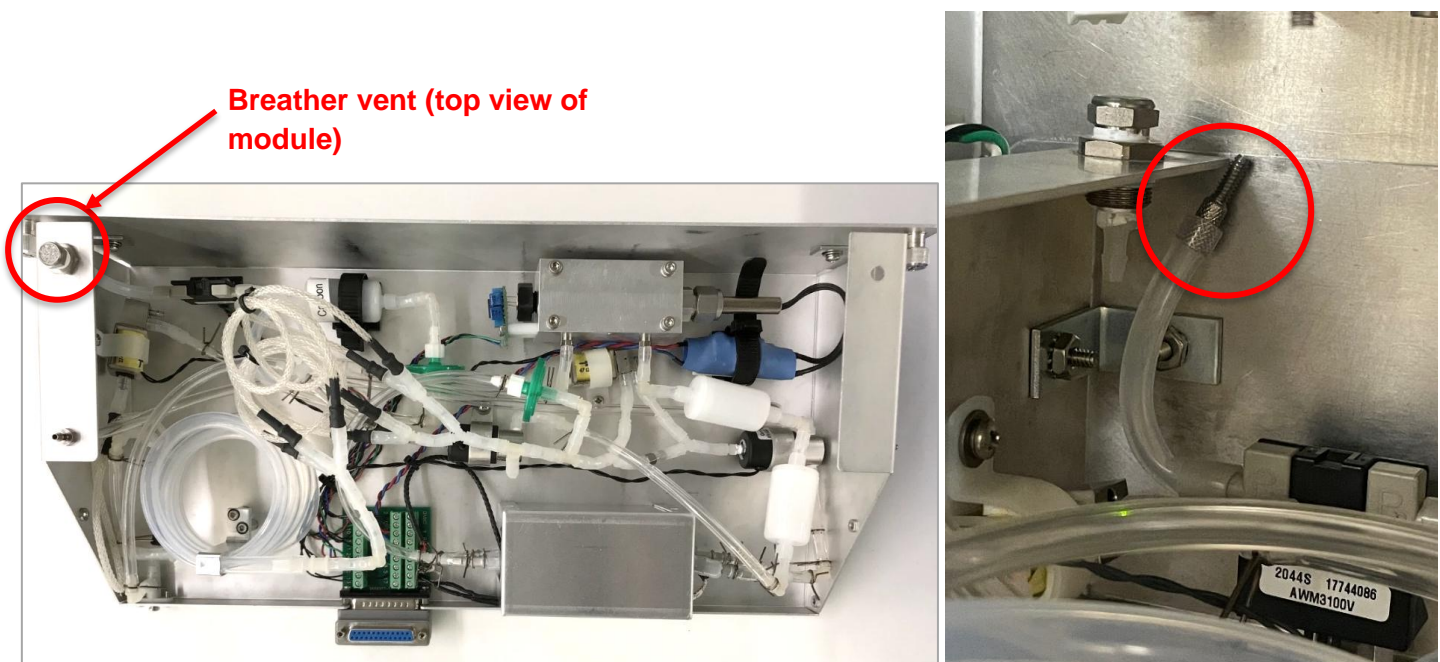
- b) Detach NOx sample inlet line from side of the enclosure. Plug the inlet line with a large fastener (diameter > 4mm), or Y fitting with tubing.



Fastener Plug

Y fitting plug

- c) Remove the cover from the NOx plumbing module. There are four thumb screws, two on each side. Disconnect the line from the exhaust breather vent (located in the top left corner of the top module). Plug the inlet line with a large fastener (diameter > 4mm), or Y fitting with tubing.



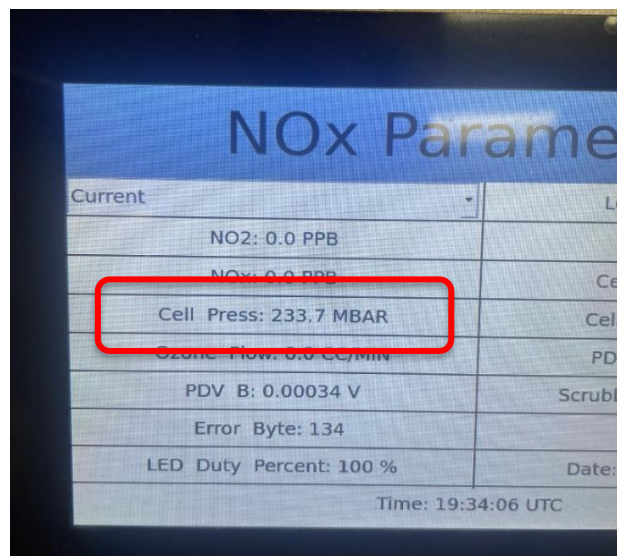
- d) Plug the output of the VSO in the back left corner of this module using a short length of silicon with a fastener or Y fitting plug. This valve is located under the breather vent in step c.



Ozone VSO Plug

- 2) Turn on AQSync. Navigate to NOx parameters page. **Parameters > NOx**

- a) The pump should pull a vacuum through the NOx modules. Check that the cell pressure drops **<300 mBar**.

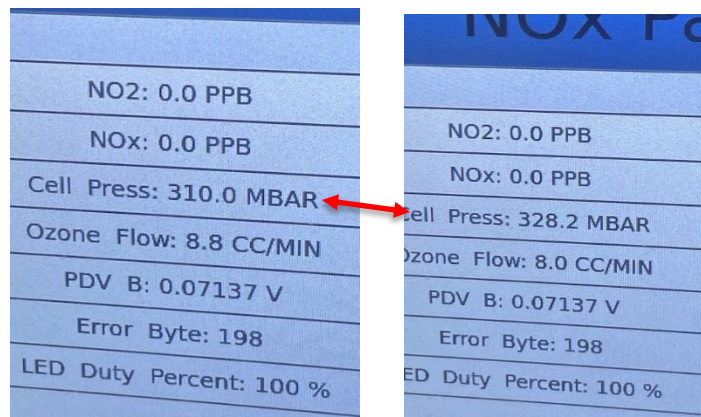


NOx Parameters screen

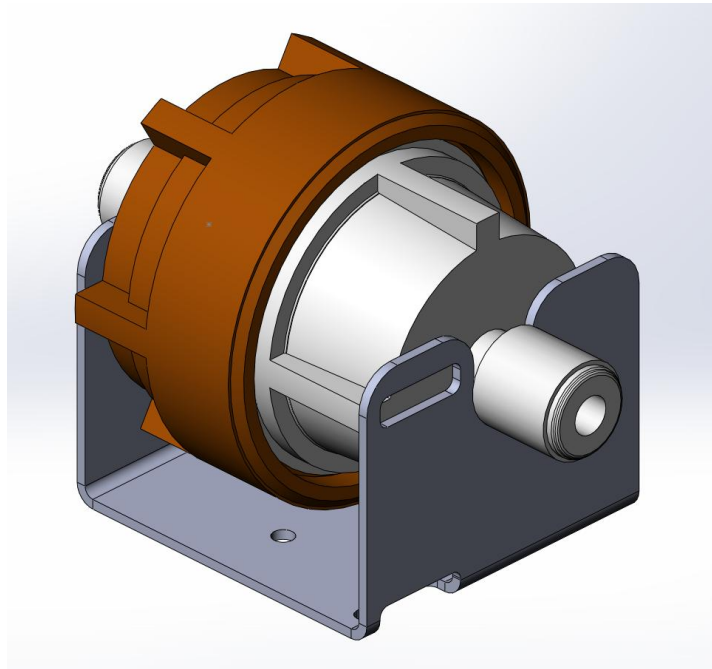
- b) Pinch the “pulling” line from the round pump. The Cell Pressure will start to rise. Check that it does not rise **>25 mBar** between readings. Readings are output every 5 seconds.



Pinch tubing



- 3) If the pressure is below 300mBar and does not rapidly increase when pinching line as described in step 2, the modules have passed the leak test. Remove all plugs and reconnect NOx inlet and Ozone flow meter line.
- If the modules do not pass, **turn off the AQSync** and check for leaks. The most common leak area is the orange Savilex filter housing and the fittings into this housing. Repeat steps 1 and 2.



- 4) After the NOx modules pass the test in step 2-3, **turn off the AQSync**. Remove all plugs and secure covers back on the modules.