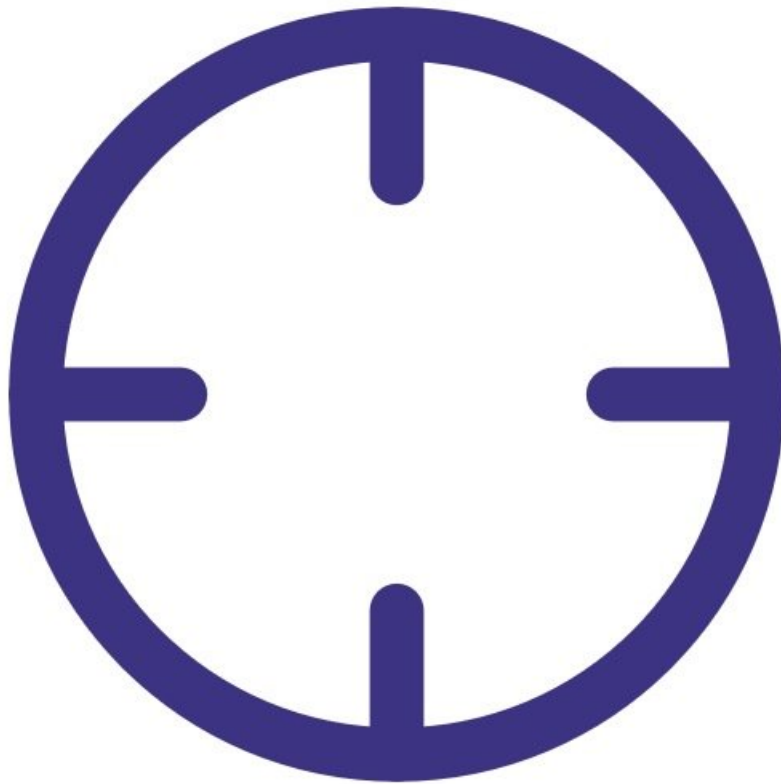




Check particle monitor for leaks

Written By: Tanya Taylor



INTRODUCTION

A leak can be caused by loose connections, worn seals (o-rings) or split tubing.

If a leak occurs, this can affect the flow rate which will have a big impact on the accuracy of the measurement.


To understand how often you should perform this service activity, [click here](#).



PARTS:

- [Leak gauge](#) (1)

Step 1 — Enter service mode



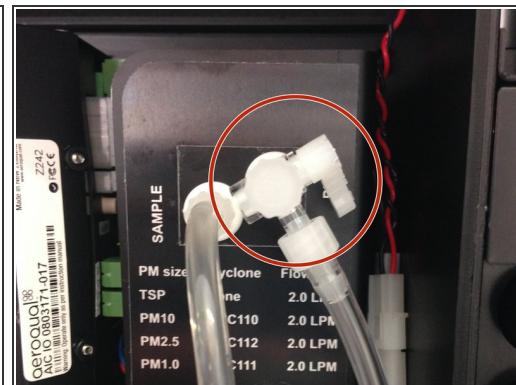
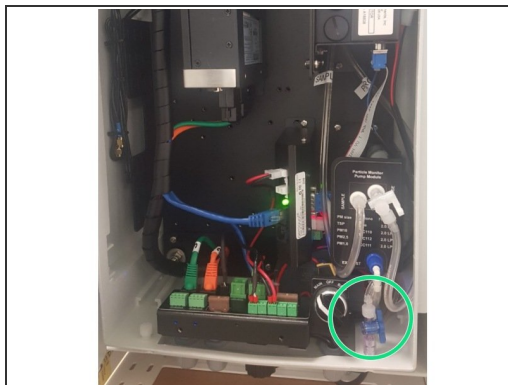
The screenshot shows the 'Calibration and Service' interface for the AQY Demo-001 instrument. The 'Manual service mode' button is highlighted in green. Below it, the 'Calibration parameters' table shows various gain and offset values. The 'Real time measurements' table displays data for NO2, O3, PM2.5 raw, PM2.5, TEMP, and RH over a period of time.

	NO2 ppb	Ox ppb	O3 ppb	O3 raw ppb	PM2.5 raw µg/m³	PM2.5 µg/m³	TEMP °C	RH %
Gain	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Offset	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0
a	1.100		2.550					
b			1.870					

Time	NO2 ppb	Ox ppb	O3 ppb	O3 raw ppb	PM2.5 raw µg/m³	PM2.5 µg/m³	TEMP °C	RH %
11:42 a.m.	2.9	29.6	24.2	23.7	1.7	1.1	15.74	86.1
11:41 a.m.	2.8	29.2	24.0	23.5	1.6	1.0	15.63	86.1
11:40 a.m.	3.1	29.7	24.2	23.8	1.9	1.2	15.60	86.1
11:39 a.m.	3.6	30.2	24.1	23.7	1.5	1.0	15.55	87.1
11:38 a.m.	4.7	30.4	23.4	23.0	1.3	0.8	15.48	87.1

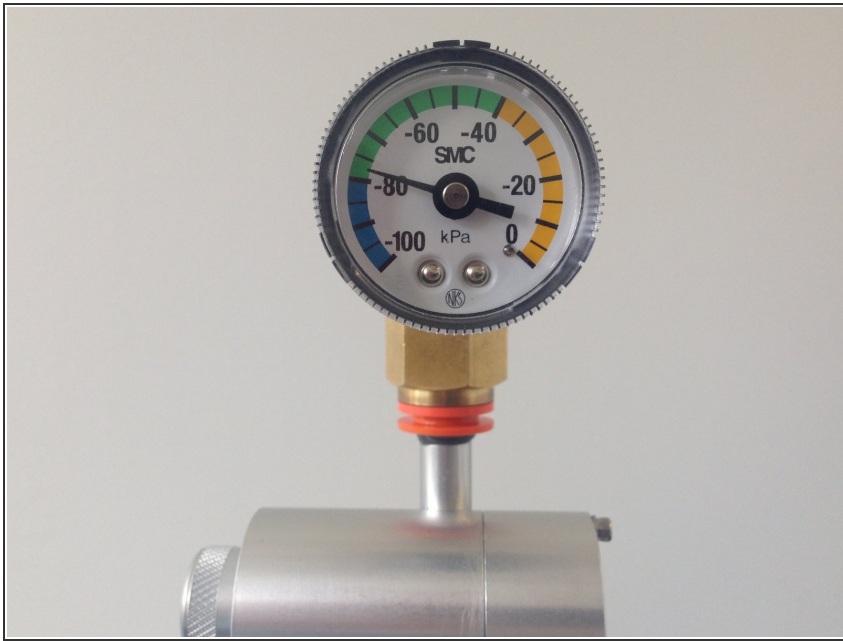
- [Enter service mode](#) so any fluctuations in the data caused from this activity can be excluded from air quality reports.

Step 2 — Open sample & block purge



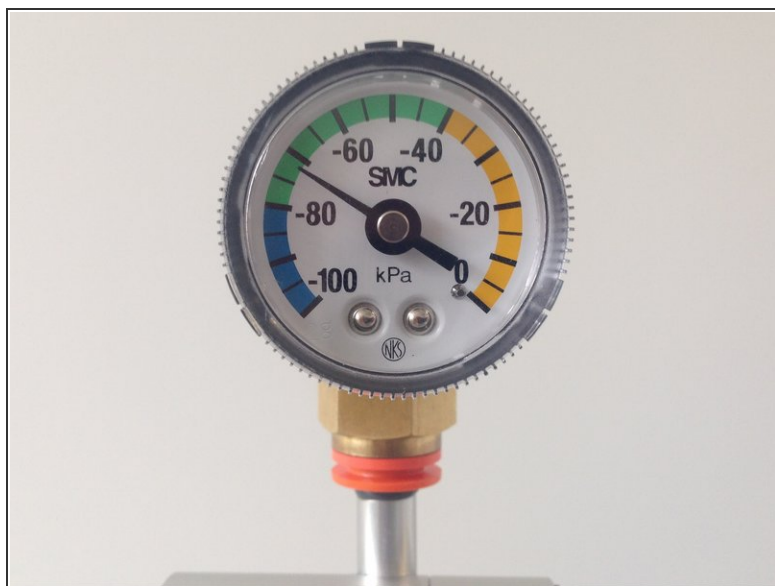
- ⚠** Adjust the sample flow by pulling the adjustment knob outwards, turning the knob to increase/decrease flow, and pushing the knob back in to lock when desired flow has been reached.
- Fully open the sample flow adjustment valve, which is located on the face plate of the pump module.
 - i** On older monitors, the sample flow adjustment valve is positioned at the bottom of the enclosure under the PDI cover.
 - Block the purge flow by pinching the purge tube.
 - i** On older monitors, fully close the purge valve by pushing the valve handle towards the pump module.

Step 3 — Attach gauge



- Remove the TSP head and install the vacuum gauge above the sharp cut cyclone.
- Wait for the gauge to stabilise.
- ① The gauge should reach at least -60 kPa while power is connected.

Step 4 — Observe pressure change



- Stop the the sample and purge pumps by pulling out the black and red power cables from the electronics module.
- Count how long it takes for the pressure to change by 10 kPa.
- ⓘ If the pressure change (leak rate) is greater than 10 kPa in 10 seconds, you'll need to check for loose connections, worn seals (o-rings) or split tubing.
- ⓘ For example, if the needle moves from -70 kPa to -60 kPa in 20 seconds, this is OK, but if it moves from -70 kPa to -60 kPa in 8 seconds, this indicates a leak.

Step 5 — Record in journal

Instrument ▾ Air Quality Monitor (AQM65 04082015-437) ▾

All journal types ▾

User entry | Cloud user - John Wagner

1. Site Inspection:	No new local emission sources Instrument in good condition No obstructions to monitoring equipment	2. Instrument inspection: Cooling fan operational PM and gas inlet secure Instrument has been running at stable
3. Equipment:	Aeroqual Gas dilution calibrator: Aircal 1000 Aeroqual Ozone calibrator: AQM O3Cal Aeroqual Flow meter: AQM R7	4 Gas cylinders: CO 1000 ppm in Air (expiry March) SO2 20 ppm in Air (expiry December) NO2 20 ppm in Air (expiry November)
4. Flow rate check:	Expected flow rate = 0.450 ml per min, Measured flow rate = 0.452 ml per min Main inlet flow rate OK, individual module flow rates were not measured.	5. Open door and change gas inlet filter
6. Zero calibration	All modules passed zero calibration, all modules were stable and all offsets were within acceptable limits.	
7. Span Calibration	CO @ 10.00 ppm Module response was 8.95 ppm gain adjustment to 1.15 pass SO2 @ 0.2 ppm Module response was 0.210 ppm gain adjustment to 0.92 pass NO2 @ 0.2 ppm Module response was 0.090 ppm gain adjustment to 2.10 pass (module may need replacing soon contact Aeroqual)	
8 Pack up. Next scheduled calibration 3 months from now. June 2017.		

- [Record the results of this service activity in the monitor's journal.](#)
- [Exit service mode.](#)

For further support, contact [Technical Support](#).