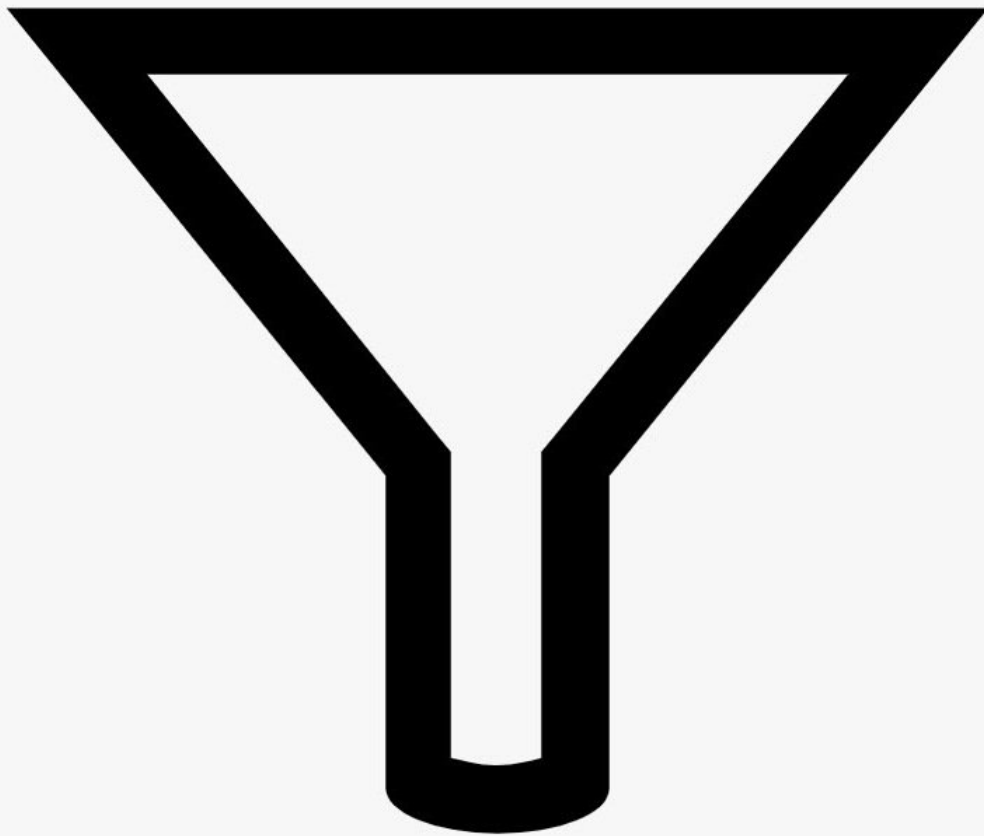




# Change filter for particle profiler

Written By: Tanya Taylor



## INTRODUCTION

A particulate system has a set of two filters – one for sample and one for purge. The sample filter protects the sample pump from the particle-laden sample air. The purge filter cleans purge air during the automatic zero.

If the sample and purge filters aren't changed at appropriate intervals, the filters can become overly laden (saturated) with particle matter. When the monitor runs its regular auto zero check, purge air passes through the purge filter and through the optics of the engine. If there's excessive particle matter in the purge filter, this can contaminate the purge airstream. This causes the H0 value, which controls the zero of the module, to be set too high and causes negative particle matter readings.

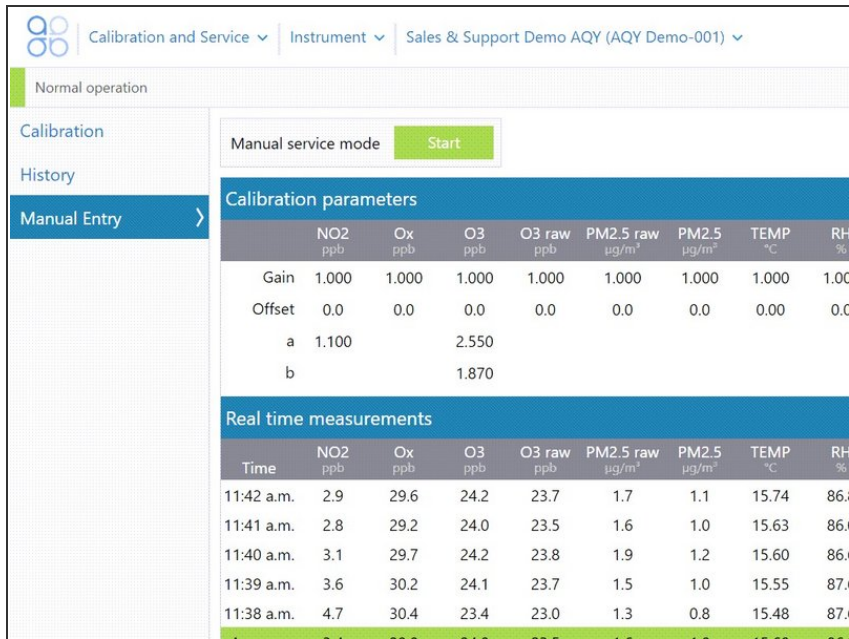
To understand how often you should perform this service activity, [click here](#).



### PARTS:

- [Filters for particle profiler](#) (1)
-

## Step 1 — Enter service mode



Normal operation

Calibration

History

Manual Entry

Manual service mode Start

**Calibration parameters**

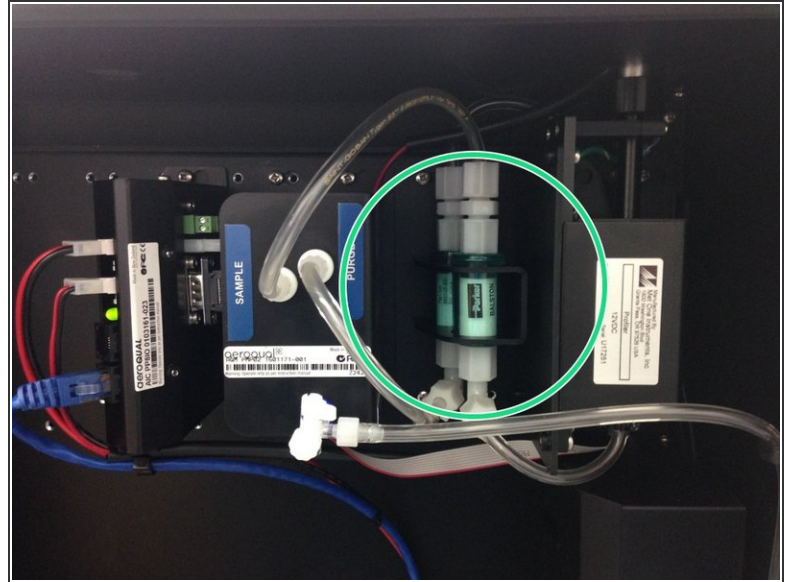
	NO2 ppb	Ox ppb	O3 ppb	O3 raw ppb	PM2.5 raw µg/m³	PM2.5 µg/m³	TEMP °C	RH %
Gain	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Offset	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0
a	1.100		2.550					
b			1.870					

**Real time measurements**

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

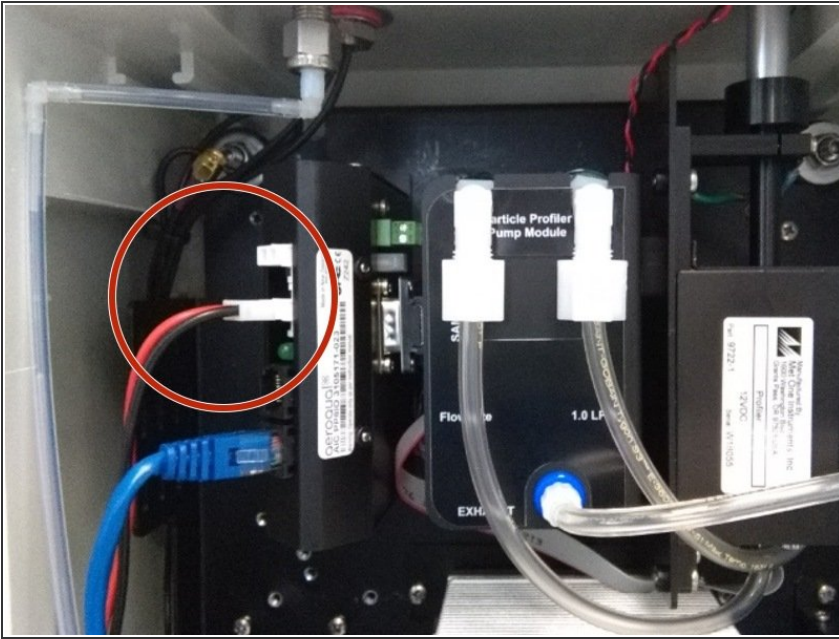
- [Enter service mode](#) so any fluctuations in the data caused from this activity can be excluded from air quality reports.

## Step 2 — Locate filters



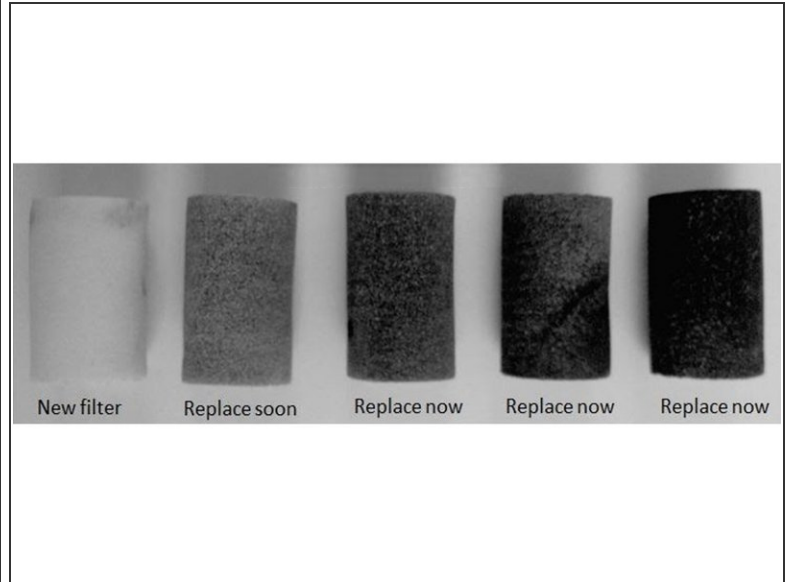
- The filters for the particle profiler are in filter casings mounted to the outside of the particle profiler pump module.
- Before August 2018, there was a different pump module and the particle profiler filters were between the pump module and optical engine.

### Step 3 — Disconnect pump



- Disconnect the sample pump from the monitor's electronics module.

## Step 4 — Change filters



- Remove the sample filter (left filter) from its holder.
- Remove the front and back elbows.
- Insert the new filter into the elbows and screw to tighten.
- Push the filter back into the holder.
- Repeat for the purge filter (right filter).
- Reconnect the sample pump to the electronics module.



## Step 5 — Check inlet flow



- [Measure the inlet's flow rate](#) to ensure you've fitted the filters correctly.
- ❗ The flow rate should be 2.0 LPM. If the flow is lower, check the filters are screwed all the way into the optical engine.

## Step 6 — 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](#).