



# Adjust flow of gas inlet and replace gas pump

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## INTRODUCTION

If all of your monitor's gas modules show reduced flow, it's likely the gas flow pump is aging. In this situation, you can adjust the flow bypass valve to provide more flow to the module inlets, and return the flow to the expected rate.

If you can't achieve the correct flow rate by adjusting the bypass valve, you may have to replace the gas sample pump.

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



### TOOLS:

- [Large Phillips head screwdriver](#) (1)
- [Tube cutter](#) (1)



### PARTS:

- [Tygon tubing \(exhaust\)](#) (1)
- [Sample pump](#) (1)

## Step 1 — Enter service mode



Normal operation

Calibration and Service | Instrument | Sales & Support Demo AQY (AQY Demo-001)

Manual service mode

Calibration parameters

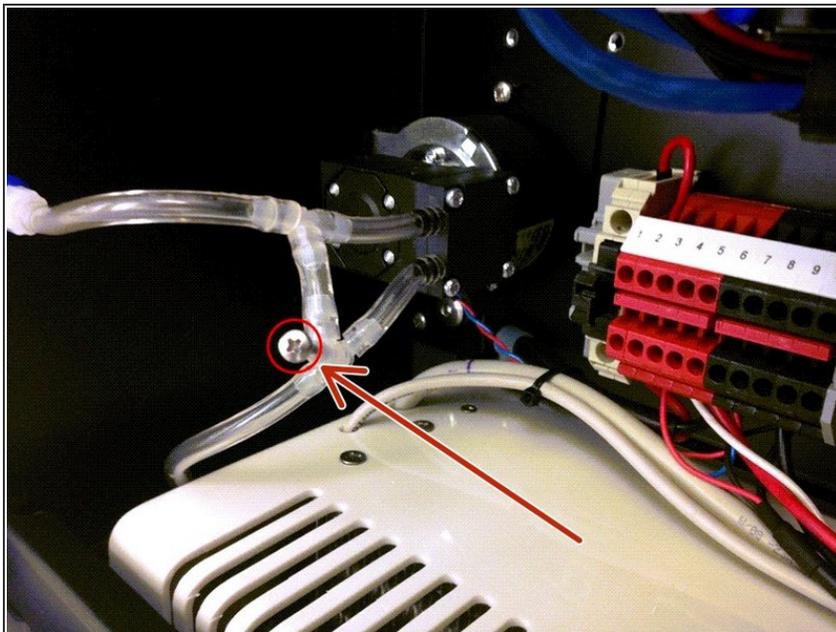
	NO2 ppb	Ox ppb	O3 ppb	O3 raw ppb	PM2.5 raw µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	TEMP °C	RH %
Gain	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.00
Offset	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0
a	1.100		2.550					
b			1.870					

Real time measurements

Time	NO2 ppb	Ox ppb	O3 ppb	O3 raw ppb	PM2.5 raw µg/m <sup>3</sup>	PM2.5 µg/m <sup>3</sup>	TEMP °C	RH %
11:42 a.m.	2.9	29.6	24.2	23.7	1.7	1.1	15.74	86.0
11:41 a.m.	2.8	29.2	24.0	23.5	1.6	1.0	15.63	86.0
11:40 a.m.	3.1	29.7	24.2	23.8	1.9	1.2	15.60	86.0
11:39 a.m.	3.6	30.2	24.1	23.7	1.5	1.0	15.55	87.0
11:38 a.m.	4.7	30.4	23.4	23.0	1.3	0.8	15.48	87.0

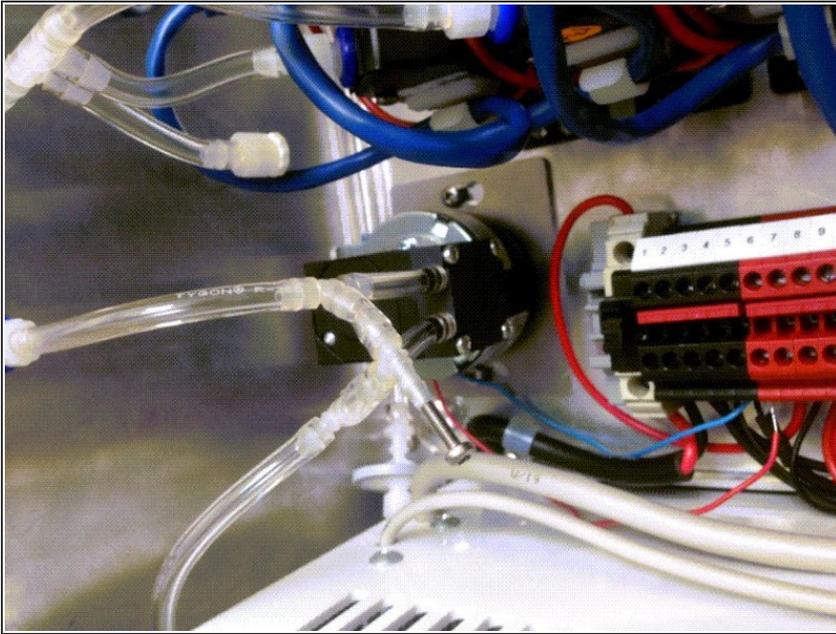
- [Enter service mode](#) so any fluctuations in the data caused from this activity can be excluded from air quality reports.

## Step 2 — Adjust bypass valve



- [Attach a flowmeter to the gas inlet and measure the inlet flow.](#)
- Adjust the pump flow bypass valve until the gas inlet flow rate returns to the expected rate.
- ⓘ The bypass valve controls the flow rate by diverting a portion of the flow.

### Step 3 — Replace pump



- ⓘ If you can't achieve the correct flow rate by adjusting the bypass valve, you may have to replace the sampling pump.
- Disconnect the pump from the monitor's power system.
- Unscrew the pump from the bracket.
- Slide the two connectors out of the Tygon tubing.
- Cut fresh lengths of Tygon tubing to connect the new pump to the main exhaust tubing.
- ⓘ This is important because the barbs on the old pump stretch the tubing when it's removed.
- Screw the new pump to the bracket and attach it to the monitor's power system.

## Step 4 — Re-check flow rate



- [Re-attach the flowmeter to the gas inlet and check the flow rate is normal.](#)

## 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 A		
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](#).