

SPM Flex Dust Separator Manual

1. Introduction

Why it is required?

Reactive or sticky gases are gases that generally have high chemical activity and are easily adsorbed and/or absorbed by exposed surfaces of the gas monitoring systems. Some examples of sticky or reactive gases include, but are not limited to Di-Isocyanate, Hydrazine, etc. However, due to presence of dust particles in the sample or the environment, these reactive or sticky gases have a greater tendency to be depleted from a gas sample.

The dust separator assembly separates particles from gas samples; which help reduce contamination of optics and ensures accuracy of the measurement.

Tools needed:

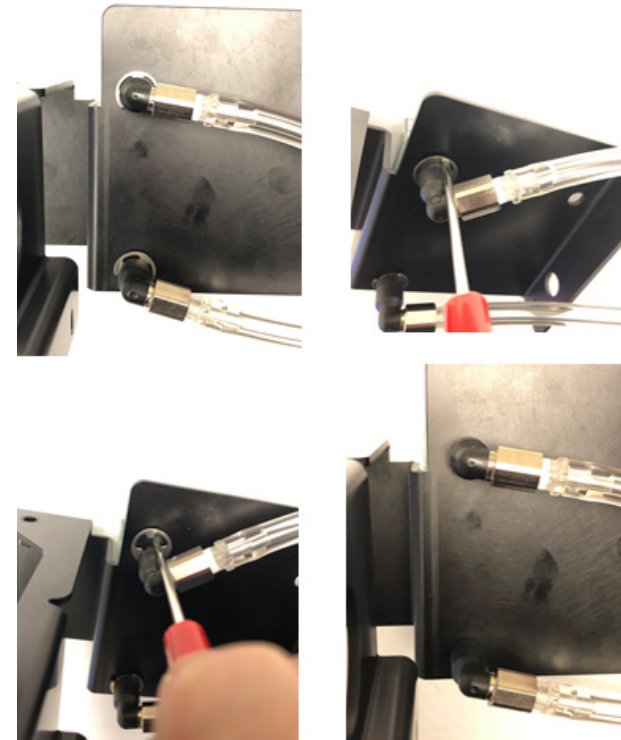
- Flat screwdriver
- #2 Phillips screwdriver
- Needle nose pliers

2. Flowmeter Orientation for Wall Mounted unit

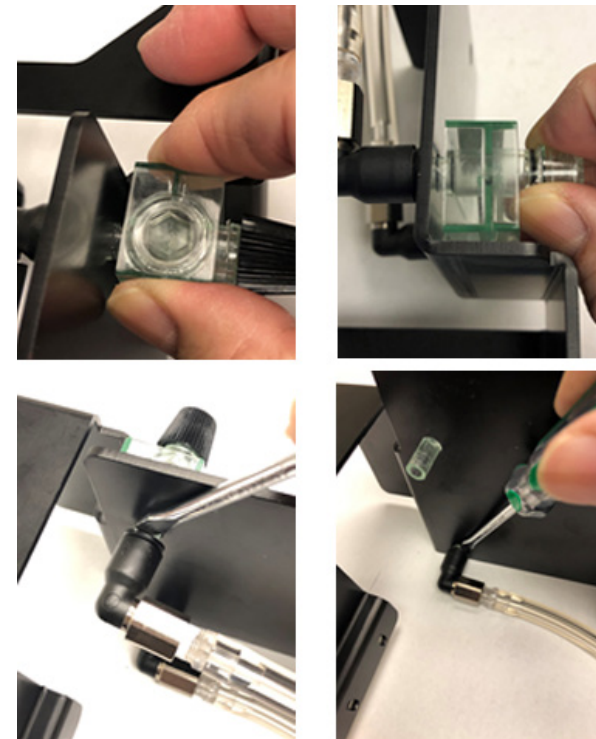
1. Remove the front cover by removing the nuts and the Phillips screws. Disconnect the fitting from the filter to the flowmeter



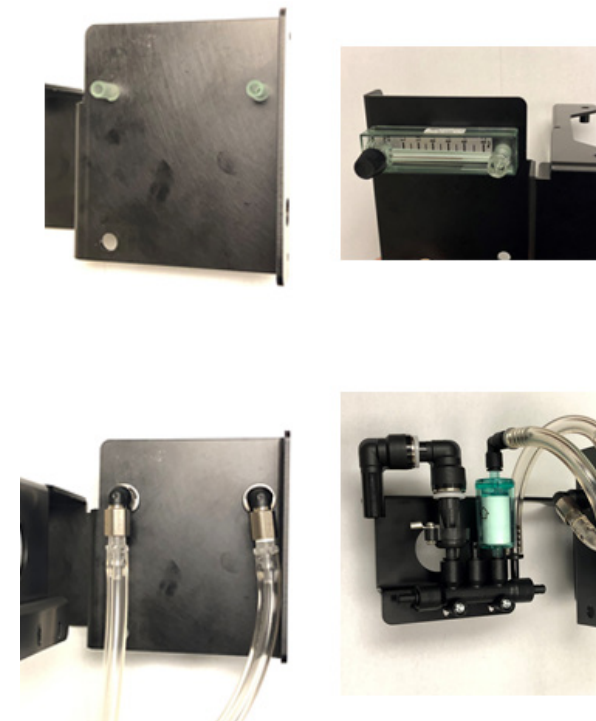
2. Using the flat screwdriver release the E-rings on the top and bottom of the flowmeter. (Recommend to use magnet to hold the E-ring when releasing.)



3. Pull the top and bottom of flowmeter to provide enough space for the flat screwdriver between the plate and fittings. Using the flat screwdriver release the fittings.



4. Remove and reposition the flowmeter as shown in the picture. Re-attach the hose connections and E-rings. Ensure that the bottom tube goes back into the filter elbow fitting. Ensure no tube is pinched or twisted.



3. Grounding

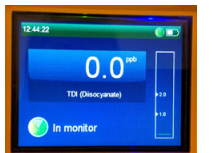
1. Connect 14-16 AWG stranded wire to the ring terminal and connect to earth ground. This ensures that the Virtual Impactor (VI) Kit is properly grounded and eliminates static buildup.



4. Bypass Flow Balancing Procedure

Di-isocyanate or Hydrazine Chemcassette tape must be installed before beginning this procedure

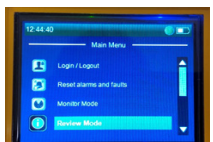
1. Enter Monitoring Mode



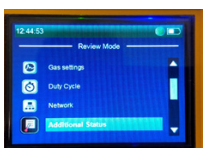
2. Adjust Bypass Flow to (0.6 L/min)



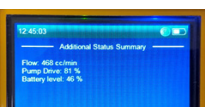
3. In Main Menu mode, enter Review Mode



4. In Review Mode, enter Additional Status Mode



5. Check Additional Status Summary



- Confirm that Pump Drive is within 10~90% and (Analysis) Flow is within 414~506 cc/min.
- If the Pump Drive is out of range, adjust the Bypass Flow within 400~800 cc/min (0.4 ~ 0.8 L / min) to achieve approximately 50% of Pump Drive.
- Following are the absolute limits of each parameter for the SPM Flex Unit with Dust Separator to be operational.

Parameters	Low Limit	High Limit
Bypass Flow	400 cc/min	800 cc/min
(Analysis) Flow		
Diisocyanates	414 cc/min	506 cc/min
Hydrazines	450 cc/min	550 cc/min
Pump Drive	0%	100%

5. Maintenance Schedule

Item	Frequency	Action	Part number
Virtual Impactor Kit	Every 6 months*	Replace	1265K0435
Dust Filter	Every 6 months*	Replace	780248
Manifold	Every 6 months*	Clean	

*Recommended service periods only.
Actual life span vary depending on environmental conditions

6. Filter Replacement Guide

Part required: 780248 -Inline dust filter
Tools required: Small flathead screwdriver

- Ensure that the unit has been powered off and is in a safe location to perform replacement of filter.
- Remove the elbow fitting on top of the filter as shown. Place the flat tip of the screwdriver on the bottom fitting and press down to release the filter.



- Place the new filter (arrow side up) into the port and press down. Reinstall the elbow.



7.Virtual Impactor (VI) Kit replacement procedure

1265A0434 Dust Separator Assembly	1265K0435 Virtual Impactor Kit (installed)	780248 Inline Dust Filter (installed)
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Part required: 1265K0435
Tools required: Small Phillips screwdriver

Ensure that the unit has been powered off and is in a location that is safe to perform replacement of VI Kit.

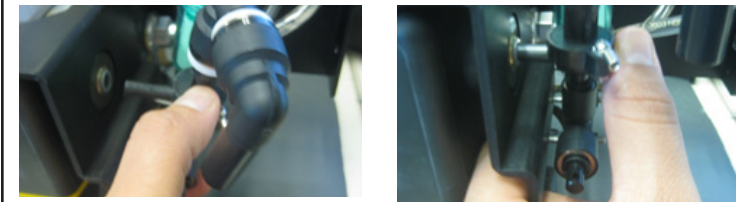
- Remove the front cover by removing the two nuts and the two phillips screws. Remove grounding ring terminal from the Virtual Impactor (VI).



- Push on the grey flange and pull back on the VI kit. It should come loose from the SPM flex unit. Push down on the black flange on the manifold and pull up on the VI Kit. The VI Kit is free of the assembly and can be discarded.



Install the new VI kit by first pushing the VI tube end into the manifold on the bottom. Ensure that the VI Kit is completely seated in the manifold. Push the other tube end into the SPM inlet and push until VI Kit cannot go in any farther. NOTE: The manifold must remain on the two threaded post at all times.



- Reconnect the grounding wire to the VI body and reinstall the front cover

8. Optional Fitting for 1/4" OD Tubing

Optional 1/2" OD to 1/4" OD Adaptor can be used for connecting 1/4" OD Tubing to the Dust Separator in order to sample the gas from the difficult to reach areas.

P/N 0235-1303
JG Adaptor 1/2" OD to 1/4" OD

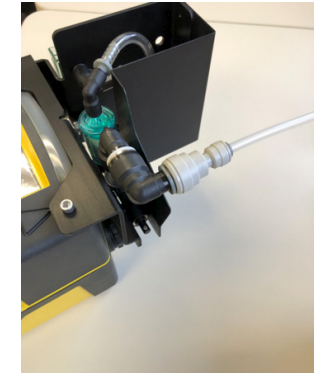
Use Case 1:
Direct



Use Case 2:
w/ 1 Elbow



Use Case 3:
w/ 2 Elbows



9. Troubleshooting

Symptom	Cause	Corrective Action
Flow parameters are out of range •Bypass flow: 400~800 cc/min •Analysis flow: 414 ~ 506 cc/min •Diisocyanates 450 ~ 550 cc/min •Hydrazines 450 ~ 550 cc/min •Pump drive: 0~100 %	Flow leak due to poor connections of fittings	<ul style="list-style-type: none"> Ensure the good connections of all fittings Follow Bypass Flow Balancing Procedure from step 4.
	Dust overload in the dust filter	<ul style="list-style-type: none"> Replace virtual impactor Follow Bypass Flow Balancing Procedure from step 4.
	Dust clogging in the virtual impactor	<ul style="list-style-type: none"> Replace virtual impactor Follow Bypass Flow Balancing Procedure from step 4.
Gas reading is out of accuracy range (±20~25 %) <i>*Refer Technical Note 971131</i>	Analysis flow is out of range (414~506 cc/min)	Follow Bypass Flow Balancing Procedure from step 4.
	Contamination in the virtual impactor	<ul style="list-style-type: none"> Replace virtual impactor Follow Bypass Flow Balancing Procedure from step 4.



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