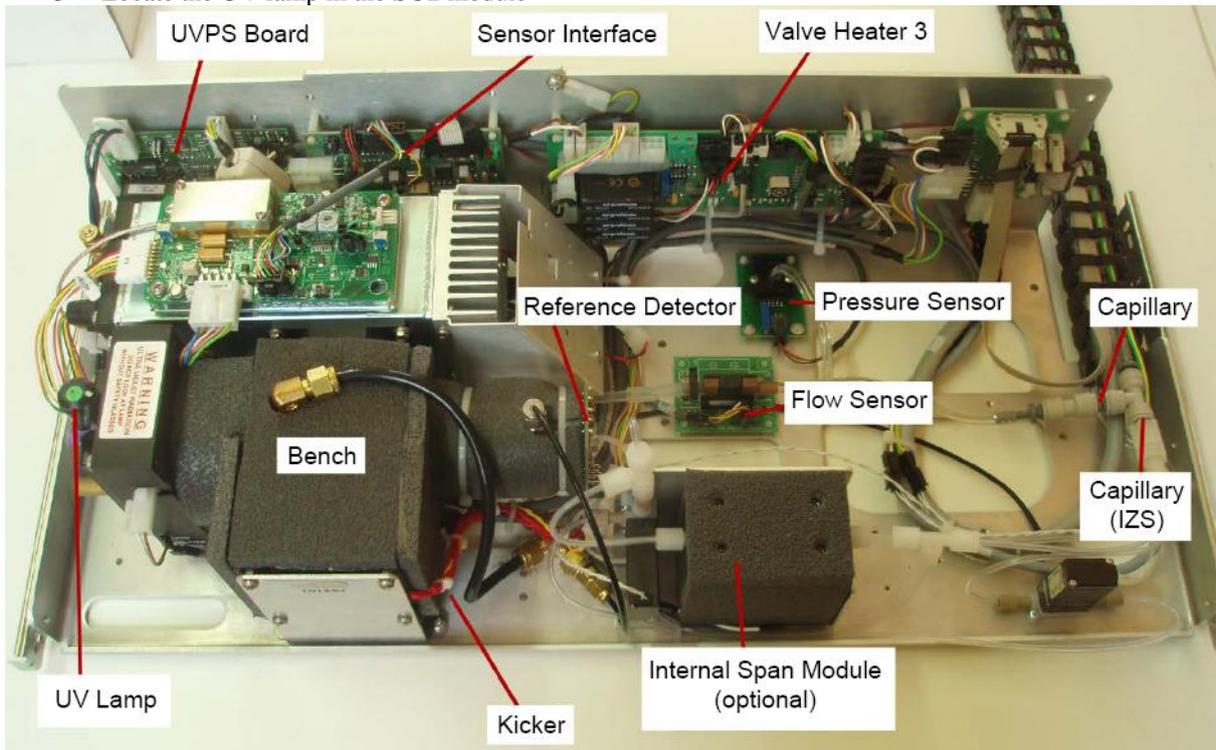


SO2 module (A) – Replacing and adjusting the UV lamp

1 Replacing the UV lamp

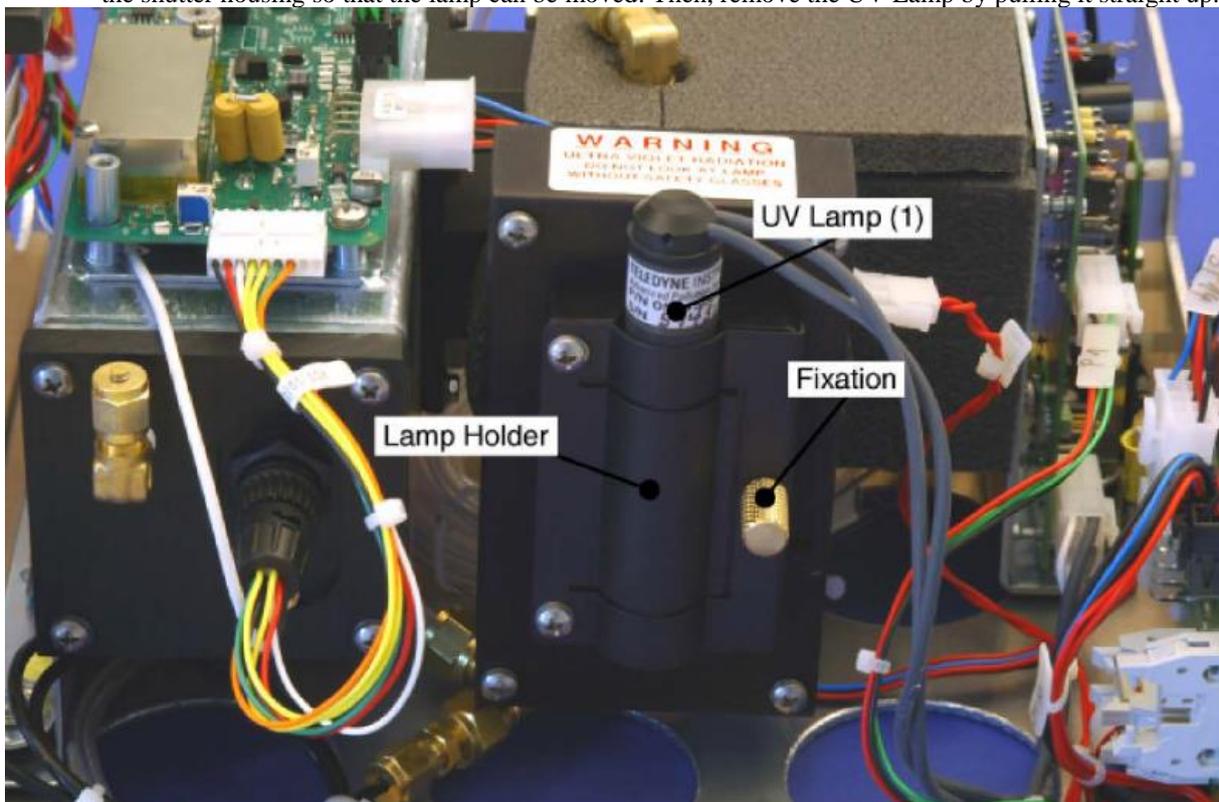
- 1- Tools you need:
 - medium Phillips screwdriver
- 2- Turn off and unplug the airpointer. Pull the SO2 module drawer
- 3- Locate the UV lamp in the SO2 module



- 4- Disconnect the UV lamp from its power supply (connector ST1 on the UV Power Supply board)



- 5- Loosen, but do not remove the two UV lamp bracket screws and the large brass thumbscrew located on the shutter housing so that the lamp can be moved. Then, remove the UV Lamp by pulling it straight up.



- 6- Insert the new UV lamp into the bracket



- 7- Tighten the two UV lamp bracket screws but leave the brass thumb screw un-tightened. Connect the new UV lamp to the power supply
- 8- Turn the airpointer back on. Wait 30 minutes to allow the UV lamp to warm up before attempting to peak the lamp

2 Peaking the UV lamp (adjusting to maximize the output)



Only trained technicians should work on powered devices. They must be aware of the risks and know how to avoid injuries due to:

- electrified elements
- heated elements
- moving or sharp elements
- UV radiations
- pressurized gas

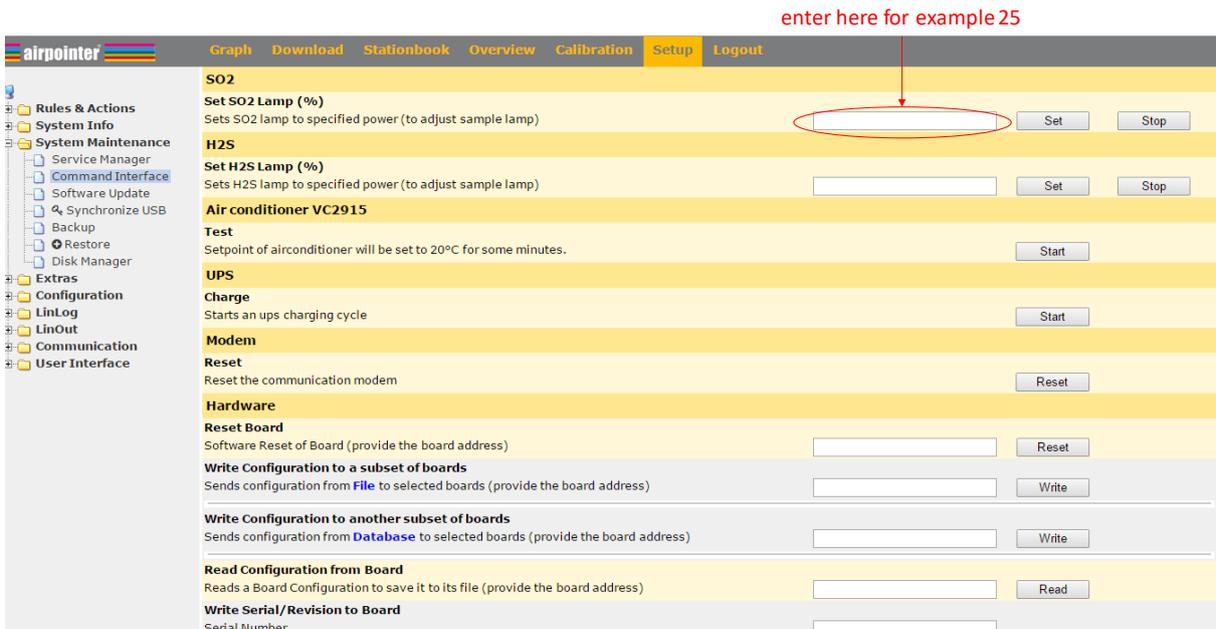
There are three ways in which ambient conditions can affect the UV Lamp output and therefore the accuracy of the SO₂ concentration measurement. These are:

Line Voltage Change: UV lamp energy is directly proportional to the line voltage. This can be avoided by installing adequate AC Line conditioning equipment such as a UPS/surge suppressor.

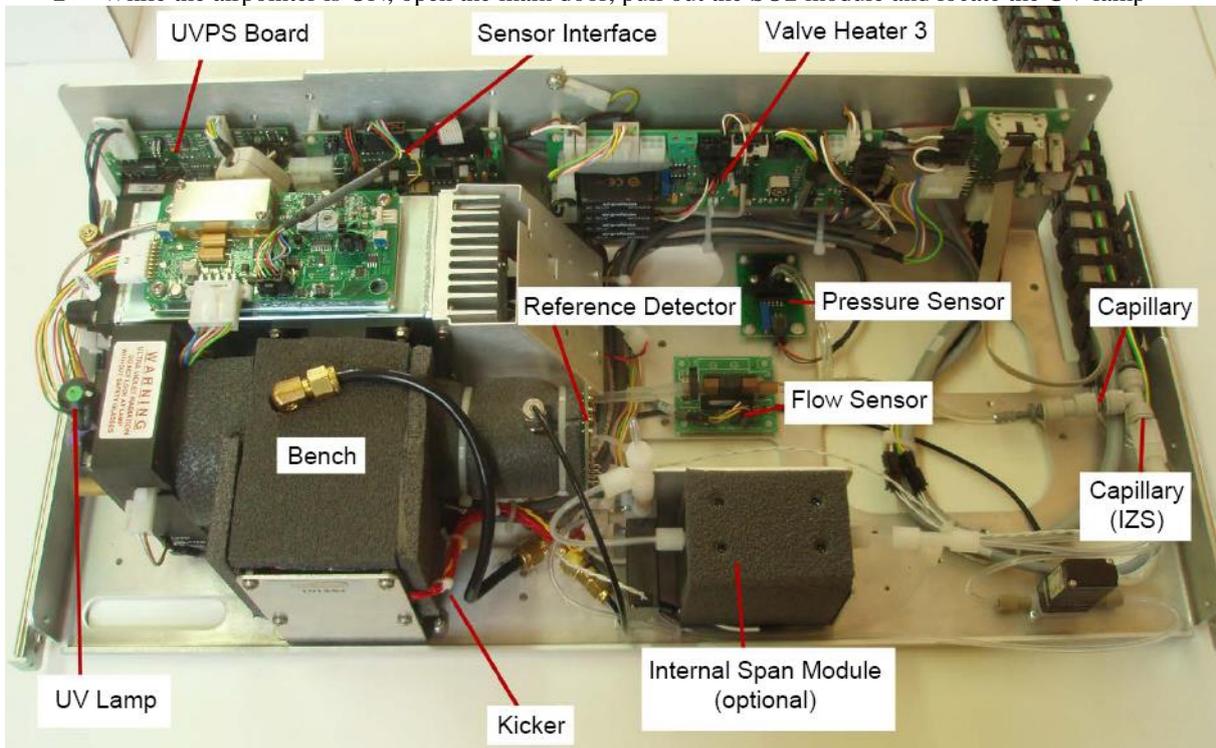
Lamp Aging: Over a period of months, the UV energy will show a downward trend and can be up to 50% in the first 90 days, and then a slower rate, until the end of useful life of the lamp. As the lamp degrades over time, a control circuit compensates for the loss of UV output until the lamp output becomes too low to function at all.

Lamp Positioning: The UV output level of the lamp is not even across the entire length of the lamp. Some portions of the lamp shine slightly more brightly than others. At the factory the position of the UV lamp is adjusted to optimize the amount of UV light shining through the UV filter/lens and into the reaction cell. Changes to the physical alignment of the lamp can affect the analyzers ability to accurately measure SO2.

- 1- In the “setup” tab of the Airpointer interface, select “System Maintenance”, then “Command Interface”. On the field “Set SO2 Lamp (%)”, enter a value, for example, 25, and click on “Set”



- 2- While the airpointer is ON, open the main door, pull out the SO2 module and locate the UV lamp



Always wear UV-protective safety glasses when working with the UV lamp assembly

3- In the “Linsens” interface, select the “SO2” tab

LinSens Service Interface [201500557], normal Operation

[Home](#) [Actual](#) [Average](#) [Calibration](#) [NOx](#) [CO](#) [O3](#) [SO2](#) [MultiPM](#) [System](#) [Values](#) [Status](#) [StatList](#) [Software](#) [Hardware](#) [RS232](#)

Actual SO2 Values
no calibration active

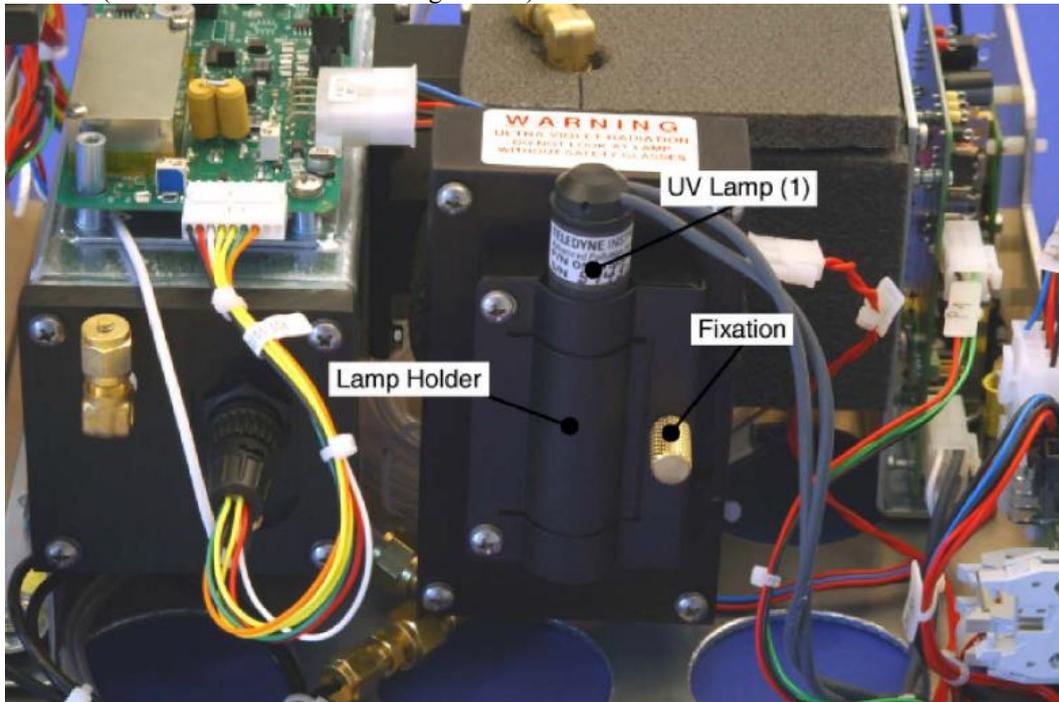
Try to maximize this value by gently moving the lamp

Parameter	Value	Unit	alternativ Parameter	Value	Unit	Status: BS-FS-SS				
SO2	0.4	ppb	SO2 [µg/m³]	1.1	µg/m³	0 0 0				
SO2_all	0.4	ppb	SO2_raw	0.5	ppb	SO2StdDev	0.49	SO2_Avg (300 sec)	0.4	ppb
PMTSigSO2	132.8	Hz	HVPSSO2	-594	V					
RefDetSO2	3000.7	mV	Setpoint	3000.0 (+/- 0.0)	mV					
IntensitySO2	63.7	%	FlasherHV	831	V					
PressSO2	797.3	mbar	FlowSO2	433.1	ml/min					
BenchTSO2	49.9	°C	PowerToBenchSO2	28.3	%					
SO2 Time Constant nr values to TC:		1200	StdDev last 10 samples:		0.21					
SO2 Slope:		1.137	SO2 Offset:		12.853					
PreAmp:		Gain 100 /Offset 0.0 /HVset 600.0 V								

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4- Slightly loosen the large brass thumbscrew located on the shutter housing so that the lamp can be moved (labelled “Fixation” in the image below)



5- While watching the RefdetSO2 reading, slowly rotate the lamp or move it back and forth vertically until the RefdetSO2 reading is at its maximum. Wait a dozen seconds for the value in Linsens to stabilize before moving the lamp further



Do NOT grasp the UV lamp by its cap when changing its position. Always grasp the main body of the lamp

6- Finger tighten the thumbscrew



Do NOT over-tighten the thumbscrew

7- In the Command Interface, click on “Stop” in front of the field “Set SO2 Lamp (%)”

8- Recalibrate the module