

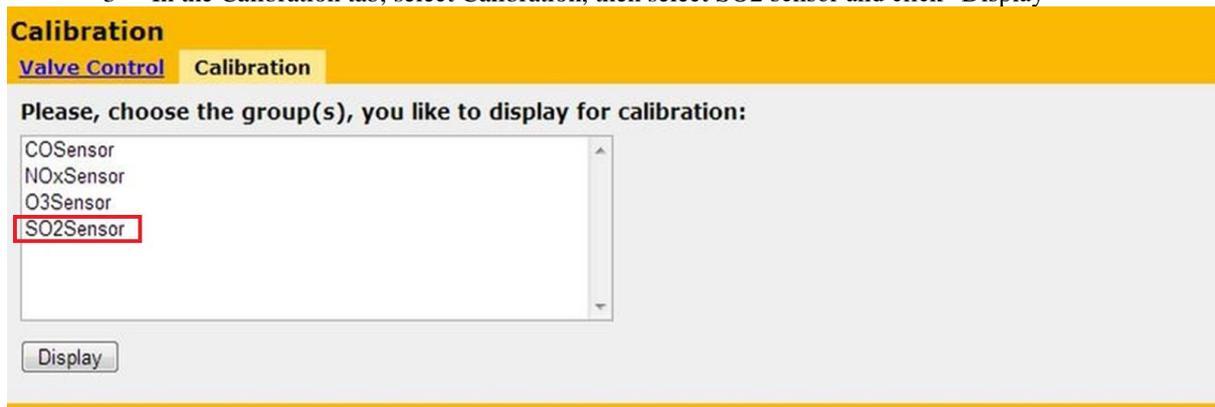
Airpointer calibration – SO2 zero and span

1 Tools you will need

- An SO2-free zero air canister or a zero air generator (we recommend using the AirQrate from MLU-Recordum)
- A SO2 cylinder, either around 400 ppb (to be used undiluted) or between 40 and 400 ppm (to be diluted)
- 9/16” wrench
- Optional: a dilution system

2 Zero calibration (offset)

- 1- Connect a calibrator equipped with a zero air generator to the calibration inlet of the Airpointer (as explained in the procedure CAL1)
- 2- Generate zero air at the required flow (as explained in the procedure CAL1)
- 3- In the Calibration tab, select Calibration, then select SO2 sensor and click “Display”



The screenshot shows a software interface for calibration. At the top, there is a yellow header with the text "Calibration". Below this, there are two tabs: "Valve Control" and "Calibration", with "Calibration" being the active tab. The main area contains the instruction "Please, choose the group(s), you like to display for calibration:". Below this instruction is a list box containing four items: "COsensor", "NOxSensor", "O3Sensor", and "SO2Sensor". The "SO2Sensor" item is highlighted with a red rectangular border. Below the list box is a "Display" button.

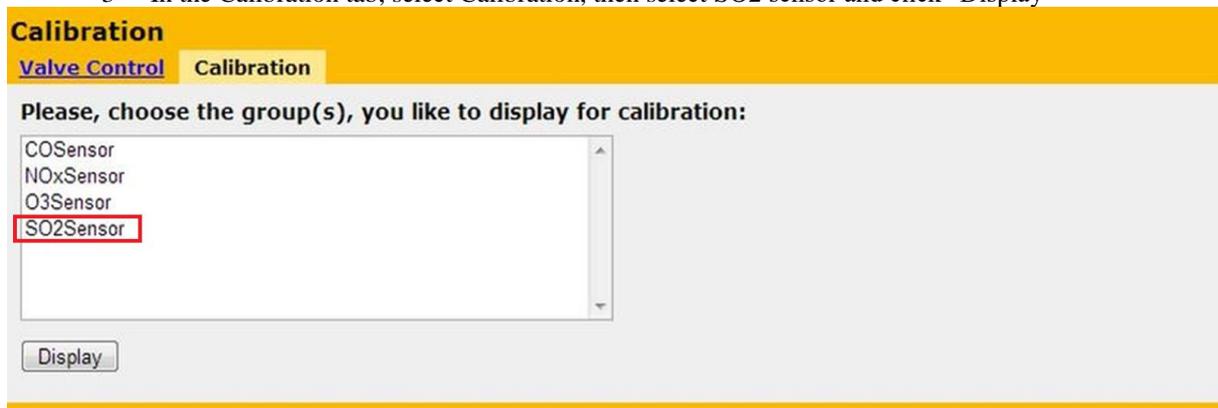
- Adjust the view of the Y-Axis to see the evolution of the signal better: choose either “Auto” or manually by entering “Min” and “Max” values, and click “Refresh graph”



- Wait for a stable measurement signal (about 10 to 15 minutes). Check that the 5 minutes average (“5 Min Avg”) displayed on the right side of the graph matches the current value of the curve
- Fill in the setpoint of the external zero gas in “zero gas setpoint” in given concentration. This value is typically 0 ppb
- Click “Calibrate zero”, and confirm. Check that the value displayed in the graph is updated to the setpoint you entered.

3 Span calibration (slope)

- Connect a SO2 cylinder to the calibration inlet of the Airpointer (as explained in the procedure CAL1), either directly or through a calibrator or a dilution system
- Generate 400 ppb of SO2 at the required flow (as explained in the procedure CAL1)
- In the Calibration tab, select Calibration, then select SO2 sensor and click “Display”



- 4- Adjust the view of the Y-Axis to see the evolution of the signal better: choose either “Auto” or manually by entering “Min” and “Max” values, and click “Refresh graph”



- 5- Wait for a stable measurement signal (about 10 to 15 minutes). Check that the 5 minutes average (“5 Min Avg”) displayed on the right side of the graph matches the current value of the curve
- 6- Fill in the setpoint of the external ozone generator in “SO2 span gas setpoint” in given concentration. This value is typically around 400 ppb
- 7- Click “Calibrate span” and confirm. Check that the value displayed in the graph is updated to the setpoint you entered.
- 8- Connect a calibrator equipped with a zero air generator to the calibration inlet of the Airpointer (as explained in the procedure CAL1)
- 9- Generate zero air at the required flow (as explained in the procedure CAL1) and check that the signal goes down back to zero within a few minutes

NB: If the message “Calibration failed” appears, it means that the difference between the expected and actual values is too big. Offset can have values between -50 and +50, and Slopes values between 0.3 and 3. This is a feature preventing human errors (such as clicking on “calibrate span instead of calibrate zero) or preventing calibrating a defective analyser. In this case, check in Linsens if the preventive maintenance is due or if errors are present in the module you are trying to calibrate.