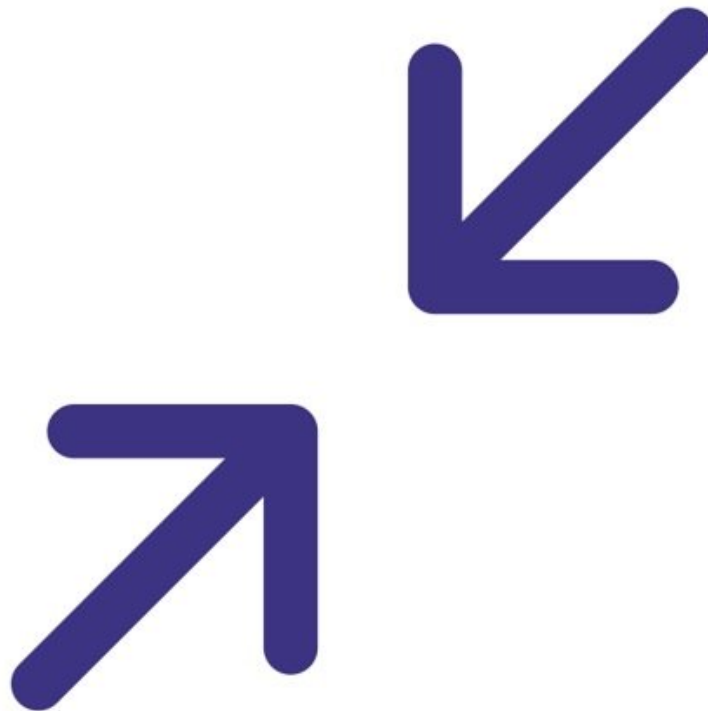# Calibration - Gas zero

How to perform a Zero Calibration with your Aeroqual Ranger.

Written By: Margaret Grattan

This document was generated on 2023-09-06 12:54:25 AM (MST).

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INTRODUCTION

Under some circumstances, sensors may temporarily exhibit a baseline reading higher than zero due to insufficient warm-up, or cross-sensitivity to other gases. In this case it is worthwhile checking against a standard zero air source.

Please allow 3 minutes for sensor warmup, after turning the instrument on and after swapping sensor heads.

🔧 TOOLS:

- Gas regulator (1)
- Calgaz gas cylinders (1)
- 1/8" I.D. Tubing - PVDF (1)

⚙ PARTS:

- RGR CALKIT Calibration Accessory (1)

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Step 1 — Connect tubing to calibration accessory

(i) The calibration accessory has barbed fittings that are intended to fit with 1/8" ID tubing.

⚠ Care should be taken in selecting a tubing material that is appropriate for the type of gas that you will be using to calibrate the sensor head.

● PVDF tubing is appropriate for most gases but the tubing datasheet should be consulted for a full list.

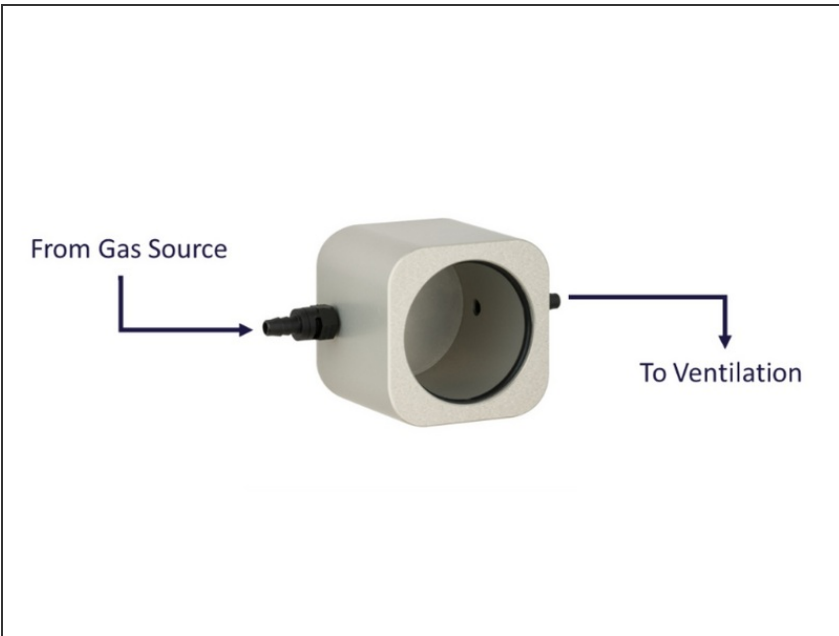(i) Either side of the calibration accessory can be designated the inlet or the outlet.

⚠ Not all gas that enters through the inlet exits through the calibration accessory outlet; be advised that some gas exits through the sensor head exhaust. Depending on your calibration gas of choice and concentration levels, you may need to perform this calibration under a fume hood.

Step 2 — Attach regulator to gas source

- Make sure the valve on your flow gas regulator is fully off.

- Screw the gas regulator onto your gas cylinder. When the regulator is correctly fitted, the pressure indicator will show the cylinder pressure.

- Always point the cylinder and regulator away from yourself and others when attaching or removing a pressure regulator.

- Secure the cylinder so it can't be knocked over while the regulator is attached.

Step 3 — Connect tubing to gas source and ventilation

From Gas Source

To Ventilation

- Connect tubing to gas source and ventilation.

- Either side of the calibration accessory can be designated the inlet or the outlet

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Step 4 — Attach the calibration accessory to the sensor head while the head is plugged into the Ranger

- Attach the sensor head to Ranger

- Turn Ranger On

- Attach the calibration accessory to the sensor head

Step 5 — Gently turn the valve on the regulator and begin to flow gas at >1L/min

- Check the cylinder pressure to ensure there's enough gas to perform the calibration (10% of full pressure should be enough).

- Gently turn the regulator valve anticlockwise and flow the target gas at >1L/min until the reading stabilizes (about 10 minutes).

Step 6 — Wait for the gas reading to stabilize

- Wait for the gas reading to stabilize on the display of the Ranger

Step 7 — Re-zero the sensor

- Flow Zero air until the reading stabilizes (approx, 10 minutes).

- Press and hold the **LEFT** arrow key to enter the Settings menu. Navigate to Settings > Calibrate

- Select 'Re-zero the sensor...'

- Press OK to confirm.

- Please wait for the 'Preparing for calibration' and 'Calibration in progress' screens.

- Upon successful calibration, the instrument will display a 'Calibration Complete' screen.

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For further support, contact Aeroqual Support.