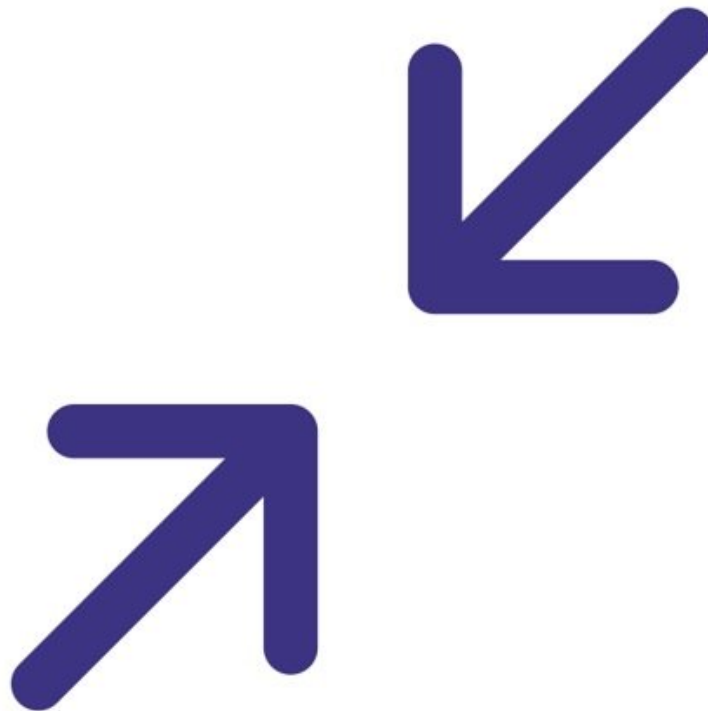




Calibration - PMX flow

How to perform a flow calibration with your Aeroqual Ranger | Dust (PMX sensor head).

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INTRODUCTION

Continued use in high-aerosol concentrations may affect the flow of the PMX sensor. If you wish to calibrate the flow of the Ranger|Dust instrument, you may do so with the help of a flow meter.

Because the presence of the flow meter in the flow path will cause some restriction, it will directly affect the flow rate reading.



TOOLS:

- [Flowmeter - TSI 4140](#) (1)



PARTS:

- [3/16" \(4.8mm\) ID flexible tubing, 2" \(50mm\) length](#) (1)

Step 1 — Find the conversion factor for the model of reference flow meter you are using in Table 1

Aeroqual Ranger™ | Dust

Device	Conversion factor
TSI 4140, filter removed	1.43
Bubble flow meter	1.00

Table 1

- Note down the CONVERSION FACTOR (CF) from this list of commonly used reference flow meters.
- ⓘ The CF varies by flow meter model.
- ⓘ If your flow meter is not on this list proceed to step 2, otherwise go to step 3

Step 2 — Measure the flow meter specific conversion factor



Conversion factor CF for the TSI 4140:

$$CF = \frac{1}{0.700} = 1.43$$

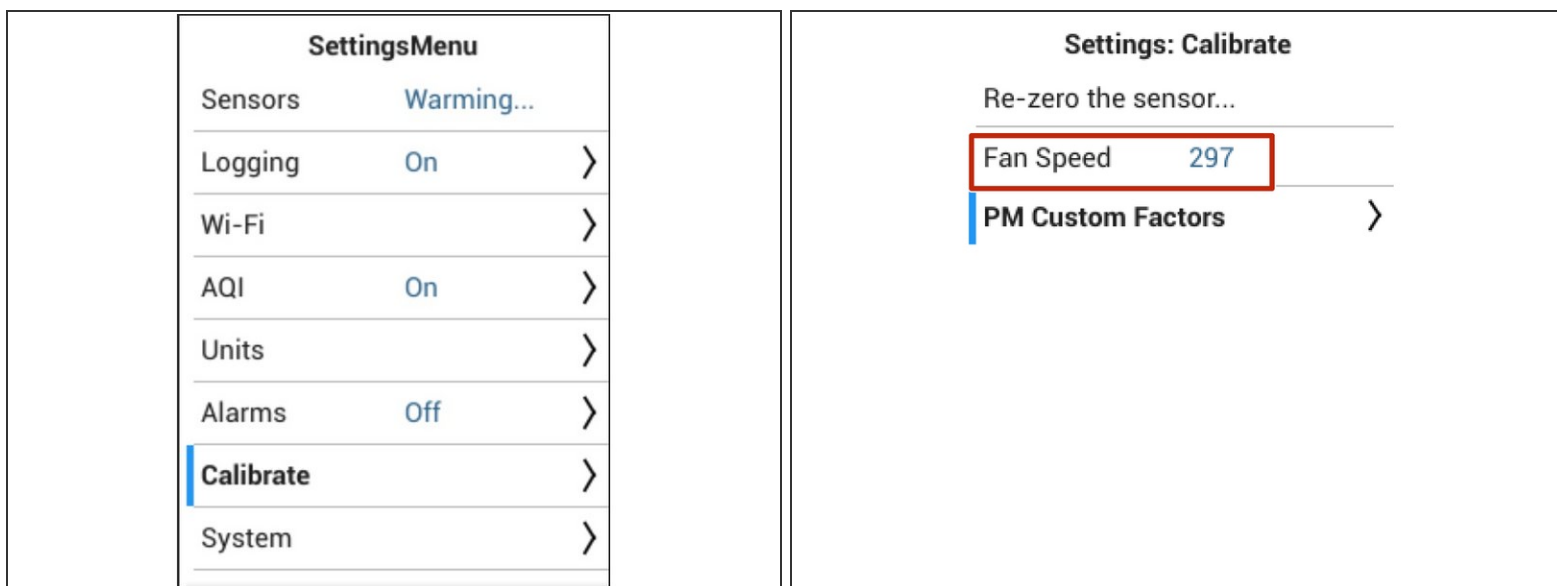
- ① This step is optional
 - A new Ranger | Dust has a factory-calibrated PMX sensor with 1.00 LPM flow
 - Twist and pull to remove the PMX inlet
 - Attach your reference flow meter to the PMX sensor head with the correct tubing (see parts needed)
 - Note the observed flow reading on the reference flow meter, F_R
 - Calculate the CORRECTION FACTOR (CF) according to $CF = 1.00/F_R$
- ① Note: The presence of the reference flow meter in the flow path causes a restriction that affects the measured flow rate. Hence the measured flow will be less than 1.00 LPM. The CF enables the actual flow (F_A) to be determined. $F_A = CF \times F_R$

Step 3 — Measure the flow



- Twist and pull to remove the PMX inlet
 - Attach the flow meter to the PMX sensor head with the correct tubing
 - Ensure any other external tubing has been removed from the flow meter (or Ensure flow meter has same tubing as when measuring CF)
 - Calculate the actual flow (F_A)
 - The acceptable flow criteria for F_A is 1.00 +/- 0.02 LPM.
- i** If the PMX meets the flow criteria the flow is correct. If the flow is outside the criteria proceed to step 4 to adjust the flow.

Step 4 — Calibrate the flow



- Enter the Settings menu by pressing and holding the LEFT ARROW
- Navigate to the Calibrate menu
- Adjust the fan speed higher or lower until the PMX actual flow (FA) falls within $0.98 < F_A < 1.02$
- Press the CENTER BUTTON to confirm the selected fan speed
- Hold the LEFT ARROW to return to the main screen
- Refit the PMX inlet

Your PMX is now calibrated.

For further support, contact Aeroqual Support.