



HEATED SAMPLE INLET & FLOW CONTROL

Using a heated sample inlet for PM_{2.5} and PM₁₀ monitoring can be very beneficial, especially in environments with high humidity. Here's why:

1. **Humidity Control:** High humidity can cause PM_{2.5} and PM₁₀ particles to absorb moisture and grow in size, leading to overestimation of mass concentration. A heated sample inlet helps to reduce this effect by maintaining a constant relative humidity level in the sample air stream.
2. **Improved Accuracy:** By reducing the hygroscopic growth of particles, the heated inlet ensures more accurate and consistent readings. This is particularly important for regulatory compliance and scientific research.
3. **Compliance with Standards:** In regions like the US and UK, there are specific humidity control requirements for PM monitoring. For example, the US EPA requires humidity control to 35% for PM_{2.5} sampling.
4. **Removes water droplets:** Water droplets creating mist, fog or spray will scatter light causing a massive overread of the actual PM concentration. The droplets are evaporated by the heated inlet.

In summary, if you're monitoring PM_{2.5} or PM₁₀ in a humid environment, a heated sample inlet can significantly improve the accuracy and reliability of your measurements.

Turnkey's iPM range of fixed PM dust monitors are supplied with a heated sample inlet. The iPM uses a Relative Humidity and Temperature sensor to measure the atmospheric conditions. The user can choose a constant humidity setpoint for the inlet between ambient and 20% RH, or a constant temperature setpoint between ambient and 60 °C.

Accurate sample flow control is also essential to meet UK MCerts and US EPA requirements. As standard, the Turnkey iPM range is fitted with an ultra-quiet pump and a precision Honeywell flow sensor. The volumetric flow setpoint can be adjusted by the user.

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