Reference Environmental Measurements

Application Notes

An engine test bay at MIRA, UK

Background

Automatic interferometers offer high precision length measurement for the calibration of gauge blocks. Displacements are measured by quantifying the interference fringes from frequency stabilised laser light. The changes in refractive index of the air within the optical path with variation in ambient humidity need to be carefully monitored.

Car manufacturers or motor research associations need to carry out stringent tests of car engines to reduce emissions into the air. As part of these tests for engine combustion efficiency, the ambient air entering the inlet manifold is monitored for compensation of NOX analysis to dry gas basis.

In the USA the Environmental Protection Agency advise the use of cooled mirror instrumentation to make this measurement.

National laboratories providing high accuracy mass standards and mass transfer standards need to compensate their balance systems for air buoyancy, which is affected by the humidity of the air.

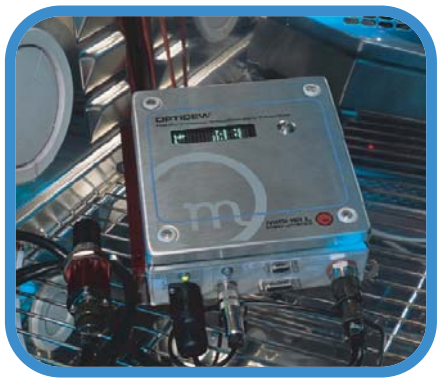
National Physical Laboratory, UK

Measurement Technique

The Michell Optidew can be used to measure or control the dew point of any environment with an accuracy of of up to ±0.15 °C dew point across the range -50 to +90 °C dp with an operating temperature range -30 to +90 °C. Optidew provides high repeatability and long term stability together with fast response and low thermal mass and heat dissipation.

Reference Users

BIPM, Brown & Sharpe, MIRA, NIST, NPL



Optidew

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