

Gas Analyzer Factory Calibration

AEI Technologies goes to great lengths to assure that our S-3A Oxygen Analyzer and CD-3A Carbon Dioxide Analyzer are calibrated to meet our demanding specifications. These techniques can then also be applied, to a lesser extent, to our MAX-II gas analyzers.

The S-3A Oxygen analyzer utilizes a very fast response zirconia oxide transducer that reliably follows the Nernst Equation to convert O₂ concentration into a voltage. We verify that the S-3A follows the Nernst Equation at many points over the range of 0-100% O₂ utilizing a voltmeter accurate to 6 decimal places. We then verify the analyzer response to various calibration gases to an accuracy of 0.01% O₂.

The CD-3A Carbon Dioxide Analyzer utilizes very fast response mechanically chopped Non-Dispersive InfraRed [NDIR] technology. We linearize the analyzer by measuring the response to 8 different calibration gases over the 0-15% CO₂ range and then producing a best-fit curve. We then verify the analyzer response to various calibration gases to an accuracy of 0.01% CO₂.

Also, because we produce a significant quantity of analyzers and compare them with the calibration gases we can observe if any calibration gas concentration does not match the expected calibration gas concentration as stated on the calibration gas testing certificate. In this way our factory gas analyzer calibration can be more accurate than the accuracy of the calibration gases themselves.



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