

### ***S2.4.2 Improving the Implementation of Metal Oxide Gas Sensors by Using Temperature and Humidity Compensation***

Charles Koehler

AO Smith

In order to avoid the common issue of false positive indication of high VOC concentrations from standard metal oxide gas sensors, it is necessary to correct the sensor response to ambient temperature and humidity. In doing so, the detection threshold of the sensor's target gas can be lowered to a range suitable for residential air filtration VOC levels. This correction is accomplished by developing a model to predict the sensor response in zero air at multiple ambient conditions. The resulting predicted output is then used to correct the sensor response to VOC's over the same range of temperature and humidity.